

# MARYLAND BIRDLIFE

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Cover Photo of Tufted Titmouse by Ralph E. Lawrence.

This issue of MARYLAND BIRDLIFE is dedicated to the memory of RALPH E. LAWRENCE, photographer, lecturer and conservationist, devoted member of M. O. S., who passed away on February 24, 1969



## THE GREATER SHEARWATER IN MARYLAND

*David Bridge, M. Susan Hundt, Willet T. Van Velzen  
and Aldeen C. Van Velzen*

### The 1969 Disaster

On June 16, 1969, the following bulletin was issued by the Smithsonian Institution's Center for Short-lived Phenomena: "A major bird kill is now occurring along a 100 mile strip of coast of North Carolina--from Beaufort in the south up to Oregon Inlet in the north. Dead and dying birds have been found washed up on the oceanside beaches of the Cape Hatteras islands. ...The kill seems to be confined to the Shearwater species, with a ratio of 50:1 Greater Shearwaters to Sooty Shearwaters found dead. There is no known reason for the massive mortality." Dead Greater Shearwaters were later reported from South Carolina to Delaware.

In response to the bulletin and the knowledge that several birds had been found on the beach at Chincoteague National Wildlife Refuge, Virginia (pers. comm., C. O. Handley, Jr. and J. E. Gordon), we organized a one-day trip to Assateague Island, Maryland, to look for shearwaters. On June 19 we walked about 6.5 miles of beach south of Assateague Island State Park (10.0 to 16.5 miles south of Ocean City Inlet). We found 18 dead Greater Shearwaters (*Puffinus gravis*), which constitute the first specimen records for Maryland (Table 1). All were found along the high water line mixed with other flotsam. We searched diligently for other pelagic birds on the beach, but found none.

### Condition of the Birds

The condition of the birds fell roughly into three categories: 1) Two birds, numbers 9 and 15, were partly buried in the sand and were badly decomposed; they had probably been dead for at least five days. 2) The plumage of fifteen birds was completely water-soaked and mixed with sand. All were in various stages of decay, and many were infested with maggots. We estimated that they had been dead for several days. 3) The last bird, number 18, had probably been dead no more than 12 hours and was in a good state of preservation; the eye was full and round, and the bird was not decayed, water-soaked, or infested with maggots. It weighed only 481 grams, which is very light compared with an average of 870 grams for five breeding male Greater Shearwaters from Tristan da Cunha Islands (Hagen, 1952).

This bird was prepared as a museum study skin (USNM 532283) by W. T. Van Velzen.

Table 1. Location, age, sex and measurements (in millimeters) of 18 Greater Shearwaters from Assateague Island, Maryland.

Specimen No.	Miles S. of Ocean City Inlet	Age	Sex	Culmen	Wing Chord	Tail	Tarsus	Wing Spread	Length	Preparation
1	10.6	--	♂	49	334	119	64	1171	528	Skeleton
2	11.2	--	♂	47.5	341	122	64	1158	492	Skeleton
3	11.6	--	♀	46	330	116	63	1128	473	Skeleton
4	11.9	--	♀	45	341	116	63	1150	486	Skeleton
5	12.2	--	-	42	307	118	61	1119	501	Skeleton
6	12.3	Adult	♀	46.5	(318)	119	61	(1079)	504	Skeleton
7	12.6	--	♂	47.5	340	115	62	1170	522	Skeleton
8	12.8	--	♀	46	341	121	63	1137	498	Skeleton
9	12.9	--	-	47	-	-	-	-	-	Skull Only
10	13.7	--	♂	46	341	118	62	1158	488	Skeleton
11	13.7	--	♂	46.5	336	122	65	1120	476	Skeleton
12	14.3	--	♀	46	342	-	63	1170	-	Skeleton
13	14.4	Adult	♀	47.5	(323)	117	63	(1107)	492	Skeleton
14	14.8	--	-	42.5	345	123	62	1140	511	Skeleton
15	15.6	--	-	48	337	119	62	-	-	Skeleton
16	15.6	--	♀	42.5	330	116	60	1115	497	Skeleton
17	16.3	--	♂	45.5	336	118	62	1161	506	Skeleton
18	16.3	Adult	♂	48	327	116	62	1120	480	Skin
Mean, 7 males				47.1	336.4	118.6	63.0	1151	499	
Mean, 7 females				45.6	336.8*	117.5	62.3	1140*	492	
Mean, all 18				46.1	335.2*	118.4	62.5	1145*	497	
Maximum				49	345	123	65	1171	528	
Minimum				42	307	115	60	1115*	473	

\*Molting birds, numbers 6 and 13, not included.

The birds that were not too badly decomposed were extremely emaciated, suggesting that they had not eaten for several days before dying. The stomach contents of 15 shearwaters were examined. Squid beaks, numbering from one to a dozen, were found in each stomach. A wide variety of other items included small stones, seeds, small snails, pieces of cork, wire, plastic and an onion. Laboratory analyses of live and dead birds from North Carolina revealed no apparent cause for the mass mortality.

#### Measurements

Measurements of the culmen, wing, tail, tarsus and total length were taken to confirm species identification before the specimens were skeletonized (Table 1). Although the males averaged slightly larger in all

measurements except wing chord, the difference between males and females was not statistically significant by any of the measurements taken.

### Molt

Since young birds leave the breeding grounds with fully grown plumage, it was hoped that wing molt could be used as a character to age the Maryland specimens. However, only two specimens showed any primary wing molt and this was nearly complete. In specimen number 6 the outer two primaries in both wings were growing. In number 13 the outer three primaries of the right wing and primaries 8 and 9 of the left wing were growing while the outer left primary was an old worn brown feather. In number 18 the tail but not the wing was molting. All other specimens were in very fresh plumage, indicating that they were either adults just completing the molt or birds of the year. Probably most were immatures.

### Maryland Status

The Greater Shearwater is an abundant bird ranging throughout the North and South Atlantic Oceans (Fig. 1). It is recorded as a casual visitor to the Maryland coast and has been seen here on only five previous occasions (Table 2). Spring records from May 9 to June 19 represent the period of northward migration in this area. The November 4 record must be of non-breeding or subadult birds. More field work in late May and June, particularly offshore, would probably reveal that the Greater Shearwater is of annual occurrence in Maryland coastal waters.

Table 2. Previous Records of Greater Shearwaters in Maryland.

<u>Date</u>	<u>Number</u>	<u>Location</u>	<u>Reference</u>
May 9-13, 1949	5 or 6	"a short distance offshore from Ocean City"	Stewart & Robbins, 1958
May 14, 1955	2	"a short distance offshore from Ocean City "	Stewart & Robbins, 1958
May 17, 1947	7	"a short distance offshore from Assateague Island"	Stewart & Robbins, 1958
June 3, 1963	2	"offshore from Ocean City Inlet"	Dyke, 1963
Nov. 4, 1961	2	"offshore from 94th Street North Ocean City"	Robbins, 1962

### Breeding

Until recently, very little had been recorded about the nidification and breeding range of this species. Although originally described to science by O'Reilly in 1818 from birds collected around Greenland and Newfoundland, it was almost a century later that the Greater Shearwater's breeding grounds were discovered in the Tristan da Cunha Islands of the South Atlantic Ocean. Most of the detailed information is found in three reports (Rowan 1952, Hagen 1952, and Elliot 1957) on which the following account is largely based.

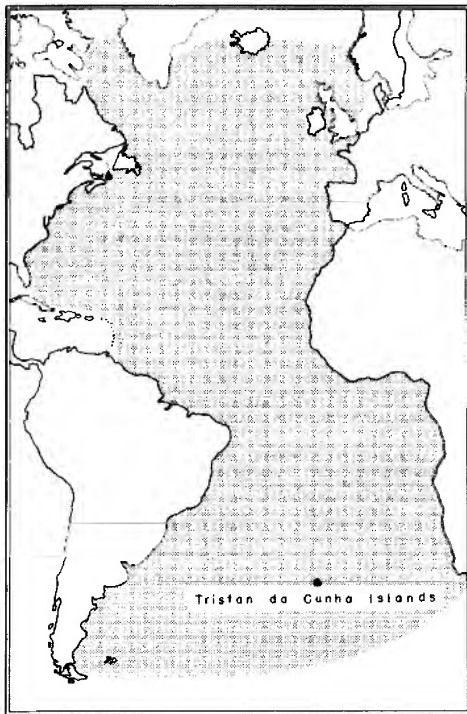


Fig. 1. Range of Greater Shearwater

which survive from year to year, are redecorated in preparation for a new nesting season. Much calling and courtship activity occurs during this period and the pair defends the burrow from later arrivals, which find little or no room to establish a nesting territory. A white egg, about two by three inches in size, is laid in a chamber at the end of a three-foot burrow. The single egg, which is the normal clutch size for *Procellariiformes*, is laid about November 11. Egg laying is highly synchronized, with all the eggs laid within a one-week period. Both parents take turns incubating the egg and feeding at sea. The incubation period has been estimated at 55 days with eggs hatching in the first week of January. The downy young chick, bluish-gray above and paler below, is fed by both adults.

#### Migration

Young and old leave the nesting grounds from late April to mid-May, beginning their long migration to the northern hemisphere. Some reach the Grand Banks off Newfoundland by the end of May; a distance of over 8,000 miles, in only four to six weeks.

Hagen (1952) banded 811 Greater Shearwaters on Nightingale Island in January and February, 1938; five were later recovered (Table 3).

The Tristan da Cunha Islands form a group of three small volcanic islands located near the center of the South Atlantic Ocean. The largest island of the group, Tristan da Cunha, is not inhabited by the Greater Shearwater. The smallest is Nightingale Island, less than one square mile in extent. Using a careful sampling procedure, Rowan (1952) estimated that the number of Greater Shearwaters on Nightingale Island was four million. On Inaccessible Island, which is about four square miles in area, Elliot estimated not less than 300,000 birds. Recently, Swales (1965) reported the Greater Shearwater from uninhabited, volcanic Gough Island, about 220 miles SSE of Tristan da Cunha, where "...the total population must be very large, possibly hundreds of thousands." This species is an unconfirmed breeder on Kidney Island, Falkland Islands (Cawkell and Hamilton, 1961).

The "Petrel" as the Greater Shearwater is known to the Tristan Islanders arrives on the islands in early September. The nesting burrows,



Table 3. Recoveries of adult Greater Shearwaters banded by Y. Hagen on Nightingale Island.

<u>Band No.</u>	<u>Date Banded</u>	<u>Date Recaptured</u>	<u>Recapture Location</u>	<u>Miles fr. Nightingale Is.*</u>
1100	Feb. 6, 1938	June 15, 1938	Off E. coast of Newfoundland	8420
967	Jan. 31, 1938	June 20, 1938	Off S coast of Newfoundland, 45°48'N., 50°00'W.	8050
1288	Feb. 10, 1938	Aug. 4, 1938	"Lille Hellefiskebank", off W. coast of Greenland, 65° N., 53°40'W.	9645
1038	Feb. 6, 1938	**	"near Greenland"	8930
1251	Feb. 10, 1938	"Spring" 1940	George, Cape Colony, South Africa	1720

\* Our calculations; approximate great circle distance in nautical miles.

\*\* No date of recovery given; letter dated Feb. 8, 1940.

The Greater Shearwater is widely distributed in the northern North Atlantic during the northern hemisphere's summer. In June and July they seem to be more concentrated off the North American coast, while in August and September larger numbers are reported from European waters, from which the homeward migration begins.

#### References

- Cawkell, E. M., and J. E. Hamilton.  
1961. The Birds of the Falkland Islands. *Ibis* 103a (1): 1-27.
- Dyke, S. H.  
1963. Audubon's Shearwater seen at Ocean City. *Maryland Birdlife* 19 (3): 67.
- Elliot, H. F. I.  
1957. A contribution to the ornithology of the Tristan da Cunha Group. *Ibis* 99 (4): 545-586.
- Hagen, Y.  
1952. Birds of Tristan da Cunha. Results of the Norwegian Scientific Expedition to Tristan da Cunha 1937-38, No. 20.
- Robbins, C. S.  
1962. The Season: October, November, December, 1962. *Maryland Birdlife* 18 (1): 9-15.
- Rowan, M. K.  
1952. The Greater Shearwater, *Puffinus gravis*, at its breeding grounds. *Ibis* 94 (1): 97-121.
- Stewart, R. E. and C. S. Robbins.  
1958. Birds of Maryland and the District of Columbia. North American Fauna 62. Washington, D. C.
- Swales, M. K.  
1965. The sea-birds of Gough Island. *Ibis* 107: 17-42, 215-229.

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## A MARYLAND OSPREY POPULATION 75 YEARS AGO AND TODAY

*Jan Reese*

### Introduction

In the December 1968 issue of Maryland Birdlife (24: 91-93) I summarized the nesting success of a population of Ospreys (Pandion haliaetus) observed in Queen Annes County, Maryland, during 1966, 1967, and 1968. Little evaluation of the population size or of the clutch size could be made because of the short period of study and the paucity of comparable studies from the pre-pesticide era. More recently, however, I have examined Osprey nesting observations made in Queen Annes and Kent Counties in 1892 and filed in the Frank C. Kirkwood collection of bird records at the Maryland Historical Society Library in Baltimore. I have extracted these observations and compiled them for comparison with my own data. Kirkwood's observations, though limited to the incubation period, permit comparisons to be made with the present breeding locations, population size, nest sites, nests, and clutch size.

### Methods

Kirkwood's observations were made on a single visit to the nest during the period May 24 to June 1, 1892. His primary objective was to collect sets of eggs. All the nests he visited were in standing trees, to which he traveled by foot, bicycle, horse, or sail boat.

I observed nesting success by visiting active nests twice during the nesting season: first in late May (25th to 27th) to determine nesting population size, and then in late June to band nestlings. Approximately 70 percent of the active nests observed in 1966 through 1968 were situated on offshore structures and were visited with an outboard motor boat. All other nests were in standing dead trees.

We both recorded the location, nest site, and contents of each active nest. The areas surveyed overlap and are shown in Figure 1.

### Results and Discussion

Breeding Locations: In the area surveyed by both of us, the distribution of the present breeding population is remarkably similar to that recorded by Kirkwood in 1892. Though man has increased in numbers and altered the habitat within the area of study, his present non-urban distribution is essentially the same as it was in 1892, and suitable nesting areas for Ospreys still exist. During this time, Ospreys have responded to man's advancements by gradual toleration and persistence in occupying the same nest site each year; thus the distribution of a persistent breeding population has not been forced out or aside as a result of massive urban development.

Population: In 1892, Kirkwood observed 32 active nests within the area he surveyed. The largest number of active nests observed in one



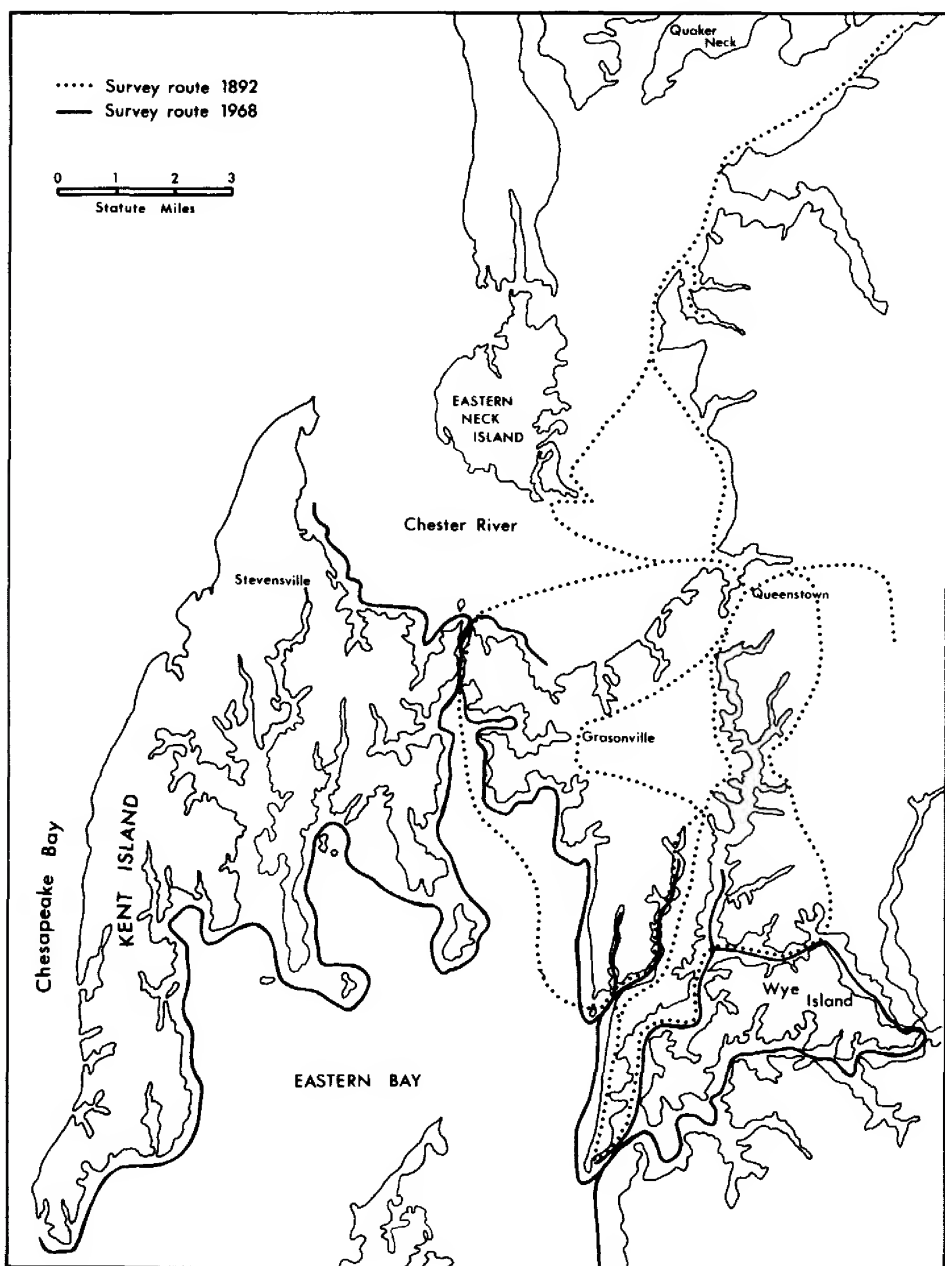


Fig. 1. Osprey survey routes of Kirkwood (1892) and Reese (1968)

year in the area I covered was 31 in 1968. The areas worked by both of us are nearly the same size and of similar habitat; they overlap in parts and were visited on about the same date in their respective years. Though our means of surveying were different, I believe they achieved an equal degree of thoroughness; therefore, these similar population totals should be significant.

Nest Sites: All of the nests Kirkwood observed in 1892 were in standing trees. Despite the availability of suitable trees for nesting in 1968, only 10 of the 31 nests observed that year were in standing trees. The others were on offshore structures such as duck blinds, U.S.C.G. channel markers, and private mooring structures. Possibly none of these offshore devices existed in 1892, so all Ospreys nested in trees. Why the transition since 1892? Excessive terrestrial predation, land clearing, and continued competition with humans have probably led to a gradual move to inaccessible offshore nesting sites. These offshore structures offer protection from some terrestrial predators and most humans; they also permit easier detection of and faster escape from danger, and place the species nearer its food supply. This evolutionary response to environmental stimuli seems to be significant.

Kirkwood climbed to 21 of the 32 active tree nests he found in 1892; 9 (43%) of these 21 were in live trees and 12 in dead trees. In 1968, I did not observe any Osprey nests in live trees, though live trees well outnumbered dead trees available as nesting sites. Ten nests were observed in dead trees. It appears that tree-dwelling Ospreys have come to prefer dead trees rather than live ones for nest sites. Possibly this came about for some of the same reasons the move to offshore nest sites did—better visibility and faster escape.

The 21 tree nests to which Kirkwood climbed ranged from 24 to 100 feet above the ground, with 14 (59%) of them between 35 and 55 feet high. These are nest heights, not tree heights. With today's comparatively young woodlands these nest heights, 40 feet plus, are not possible, and most tree-dwelling Ospreys are now limited to nesting below 40 feet.

Nests: Some of Kirkwood's nests were three to seven feet thick, indicating that they had been used for many years. I did not observe any nests this large in 1966-68. Of the 21 accessible nests to which Kirkwood climbed, only 12 (57%) contained eggs. In 1968, 18 (86%) of the 21 nests visited contained eggs. I doubt if the difference is as great as indicated. In nests suspected of previously containing eggs, but not having whole eggs on my first visit, I made extensive efforts (which were highly successful) to find egg shell bits dispersed in the nest material. Kirkwood did not do this.

Eggs: Since the dates of Kirkwood's visit and of my first survey each year were during the late stages of Osprey incubation in Maryland, they permit a reasonably good comparison of egg observations. Of the 21 nests Kirkwood examined, 12 contained a total of 28 eggs for a mean clutch size of 2.3 eggs per nest with eggs. In the three years of my study, 2.4 eggs was the greatest mean clutch size observed in any one

year; that occurred in 1968 when 18 nests with eggs contained a total of 44 eggs. A more meaningful clutch size for the present breeding population can be obtained by averaging the clutch sizes from all three years of my study. This gives 2.2 eggs per nest with eggs. There is no reason to believe these clutch sizes are not representative of the breeding population, so it appears that the present breeding population is laying clutches comparable to those of 1892. Since Kirkwood made only one nest visit, mostly prior to hatching, and collected all eggs he observed, no information concerning hatchability, nestlings, fledglings, or productivity of the 1892 breeding population can be derived from the records.

### Summary

Observations of nesting Ospreys made in Queen Annes County during 1966, 1967, and 1968 were compared with similar observations made in Queen Annes and Kent Counties in 1892. Comparisons were limited to the incubation period, but showed the following to be significant:

- 1) Distribution of the present breeding population is nearly identical to that of 1892.
- 2) Size of the present breeding population in the area studied is approximately the same as the 1892 breeding population.
- 3) Environmental stimuli have caused the majority of nesting Ospreys to make a transition from trees to offshore structures for nesting sites since 1892.
- 4) Although 43 percent of the 32 tree nests of 1892 were constructed in live trees, none of the 10 tree nests in 1968 were in live ones.
- 5) In 1892, 59 percent (14) of the nests observed were between 35 and 55 feet above the ground.
- 6) In nests with eggs, the present breeding population appears to be laying clutches of about the same average size (2.3) as in 1892.

### Acknowledgment

I wish to thank Mrs. Keenan Poulson for drawing the map.

St. Michaels

### ATTENTION COASTAL BIRDERS

An extensive study of the Ipswich Sparrow has been undertaken by Dr. Ian McLaren of Dalhousie University. He has banded several hundred individuals on their only nesting ground, Sable Island, Nova Scotia. In order to obtain an estimate of the world population of this interesting species, Dr. McLaren is asking observers to make a special effort to watch for banded individuals and to keep a count of the number of banded and unbanded birds. Record the locality, date, number that you are sure are not banded, number that are banded (and note which leg has the band), and if any have color bands in addition to the aluminum band try to determine the colors and positions. All color-banded birds are adults. Report all sightings to Maryland Birdlife, even if all birds seen are unbanded; we shall publish a progress report and we shall promptly forward all observations to Dr. McLaren.

## OPERATION RECOVERY IN MARYLAND IN 1969

*Chandler S. Robbins*

The Operation Recovery program was initiated on a trial basis in the autumn of 1955 as a means of channeling the activities of volunteer bird banders in a cooperative study of bird migration. Any licensed bander who was authorized to use mist nets could participate in the program provided he kept a record of his daily netting effort (number of net-hours of operation between sunrise and sunset) and recorded weights and/or measurements of the birds banded. As the program rapidly expanded, a great deal of information on age and sex characters was accumulated. This in turn was made available to other banders, who checked it and added to it. Whereas 15 years ago the age and sex of most birds banded was unknown, the O.R. banders now are able to separate adult from immature birds in almost every species, and to determine the sex of many warblers and other birds that prior to O.R. could be sexed only internally.

This season was the fifteenth and final year of the data-gathering phase of the O.R. program, under which nearly a million songbirds have been banded. The records are presently being subjected to quality control checks and will then be analyzed to provide new information on year-to-year changes in migration patterns, effects of specific weather conditions on migration of various species, factors that cause birds to occur outside their normal range, long-range overseas flights of songbirds, loss of migrating birds at sea, weight loss during migratory flight, length of stay of transients between migratory flights, age and sex ratios, value of measurements and weights as an aid in ageing and sexing the various species, and many other interesting facets of bird distribution, migration, and changing abundance.

Marylanders, from the inception of the program, have played a leading role. Nineteen different stations have been manned in our State for one or more years, and an aggregate of more than 164,000 Maryland birds have been tagged in this study (80,237 at Ocean City alone). The reader is referred to the various December and March issues of Maryland Birdlife for many references in the Season reports, in O.R. summaries such as this, and in special articles relating to O.R.

Table 1. Summary of O.R. Bandings in Maryland in 1969

Station	Dates	Net-hours	New Birds	New per 1000 n-hr	Species	Commonest Species
Bellevue	8/2-10/27	2,481	1,381	557	75	Myrtle Warbler 328
Damsite	8/5-11/ 2	16,233	3,910	241	93	Myrtle Warbler 808
Irish Grove	9/3-11/ 3	13,839	4,109	297	93	Myrtle Warb. 1619
Kent Point	8/16-10/18	17,117	3,600	210	92	Blue Jay 1019
Monkton	9/7-10/30	535	299	559	36	Slate-col. Junco 50
Ocean City	9/9-9/29	6,357	2,234	351	84	Am. Redstart 297
		56,564	14,852	262		

The 1969 Maryland O.R. bandings are summarized in Table 1. There were six stations in Maryland this fall, including two new ones: Bellevue in Talbot County, and Irish Grove Wildlife Sanctuary in Somerset County. In order to obtain a direct comparison between the migration at our new Irish Grove Sanctuary and those so well documented over the years at Damsite, Kent Point and Ocean City, a special effort was made by Mrs. Richard Cole to run an O.R. station at Irish Grove at the same time the other stations were in full operation. Her efforts were well rewarded, as shown by her capture of 4,109 birds of 93 species, all within one-quarter mile of Sanctuary Headquarters.

Each autumn migration has certain unique characteristics and we look to Operation Recovery to reveal or document these. Field observers often make generalizations on the abundance or scarcity of certain species based on their personal experience. Banders, however, should be in a better position to make comparisons, since they have firm numeric counts and do not have to worry about possible duplication from one day to another. This fall nearly all Maryland banders complained of the scarcity of thrushes, especially the Swainson's and Gray-cheeked. Furthermore, stations in Massachusetts, New York, New Jersey and West Virginia also commented on a noticeable decrease in these two species.

As an experiment, I made a statistical comparison of the 1969 Ocean City bandings of these species with those for the prior ten years. I used only the period Sept. 9-29 and I corrected for differences in the number of net-hours each year. This year's 66 Swainson's Thrushes per 10,000 net-hours at Ocean City was the lowest rate in 11 years, and 70 percent below the 10-year mean. This year's Gray-cheeked Thrush rate of 8 per 10,000 net-hours (86 percent below the mean) was also the lowest on record for Ocean City. Because of the variability from year to year, however, the 1969 figures are still within the range of values that could be expected from chance alone; so it is not possible to conclude from Ocean City data alone that these two species were below normal this year. A similar comparison for 7 Septembers at the Damsite station also showed both species at a new low in 1969, the Swainson's 75 percent below average, the Gray-cheek 93 percent below average. The low 1969 figure for the Swainson's was within the range of normal variation, but the Gray-cheek capture rate in 1969 was low enough to be highly significant statistically (less than one chance in 100 that a number that low would occur from chance alone). In view of the general agreement of Maryland banders and reports from other large stations in the Northeast, it appears probable that production of young Swainson's and Gray-cheeked Thrushes was far below normal this past summer. Further documentation, such as a comparison of age ratios with those of recent years, will be necessary to document this hypothesis.

A check of 27 other species at Ocean City showed that four species were banded in numbers far above the normal range of variation: Red-breasted Nuthatch, Brown Thrasher, Philadelphia Vireo, and Cape May Warbler. These species were not captured in record numbers at Damsite or Kent Point this year, but the Red-breasted Nuthatch and Cape May Warbler were among the four species that George Hall mentioned as unusually common

this fall at the Allegheny Front O.R. station in West Virginia.

The following station reports describe highlights of the season at the various Maryland stations.

#### Bellevue

Between Aug. 2 and Oct. 27, 1,381 birds of 75 species were banded on week ends plus a few vacation days on my parents' farm near Bellevue in southern Talbot County. The banding area was a mixed growth of Loblolly Pine, Sweet Gum, blackberries, Persimmon, Poison Ivy, Trumpet Creeper, Red Cedar, salt water bushes, and brackish marsh approximately 50 x 250 x 150 x 350 feet enclosed on three sides by soy bean fields and on one side by marsh. From 5 to 15 nets were operated on 35 days for a total of 2,481 net-hours, or one bird per 1.8 net-hours.

Commonest species by month were: August, Cardinal (14), American Redstart (12), Black-and-white Warbler (7); September, Yellowthroat (54), American Redstart (45), Catbird (27); October, Myrtle Warbler (326), White-throated Sparrow (96), Song Sparrow (92); overall, Myrtle Warbler (328), White-throated Sparrow (99), Song Sparrow (98). Monthly totals were: August, 96 birds of 25 species in 10 days; September, 389 birds of 58 species in 13 days; October, 896 birds of 51 species in 12 days.

The best day's total was 212 birds on Oct. 26. Three or four times this total could have been caught on either Oct. 25 or Oct. 26, which were tremendous flight days, if I had not been operating alone for much of the day. Fortunately, my wife, Liz, came to the rescue for parts of those two days. The best species day was Sept. 29 with 32 species captured. Since I have a full-time job in Philadelphia, I missed most of the good cold fronts, which always seemed to break during the week. No rarities were encountered, but birds such as Lincoln's Sparrow, and Mourning, Connecticut, and Orange-crowned Warblers were additions to my property list, which is now 212 species. No weights were obtained, but about 95 percent of the birds were otherwise fully processed. The small 30 mm. mesh size accounted for the low numbers of Yellow-shafted Flickers (1), Blue Jays (8), Brown Thrashers (6), and also a Sharp-shinned Hawk that escaped.

The Bellevue area is about seven miles east of the edge of Chesapeake Bay proper and so does not enjoy much of a peninsular or land's end effect. I was, therefore, very pleased to catch this many birds.

I have been birding in this area since 1949, when I first became interested in birds, but this is the first extensive banding I have done here, and it resulted in several surprises. One of these was an apparent movement of Mockingbirds during September and early October.

I have Xeroxed some summary tables. They are available gratis to anyone interested.

Henry T. Armistead, 39 Benezet St., Philadelphia, Pa. 19118



Damsite

Operation Recovery at Damsite this year had to play second fiddle to the Third Biennial Bird Carving Exhibit and to the raising of a litter of yellow Labrador Retrievers. Had it not been for the marvelous cooperation of Betty and Gordon Hackman our results would have been nil. Since the Eastern Bird Banding Association wants a specific type of report, let me follow Fred Schaeffer's requested format.

The Damsite station is near Fairlee, Md., on private land set aside as a game preserve bordering Chesapeake Bay and having net lanes along a 16-acre fresh water pond, in wooded areas bordering lespedeza fields, and in a bayberry patch where dogwood, Sassafras, wild cherry trees, honeysuckle, Poison Ivy, and Virginia Creeper abound. Weather plays an important part in the number of nets used as many are subject to high winds and must be furled at times. Nets used varied from 4 to 37 on the 64 days of banding during August, September, and October.

We banded 3,910 new birds of 93 species, caught hundreds of repeats, several returns, and one foreign retrap. Total net-hours, 16,233. A Slate-colored Junco banded as an immature on Oct. 27, 1968 at Kiptopeke O.R. by Charles Hacker was processed and released at Damsite on Oct. 23, 1969. My thanks go to Ted Van Velzen who ran the station four days in September, and to Chan Robbins who hit the peak day, Oct. 28, when kinglets, Pine Siskins and goldfinches raised the day's count to 546. Lina Whiteside and Orrey P. Young served as licensed but apprenticed banders for a short time. Mary Emerine was a loyal recorder one day a week and of course E. M. and the Hackmans kept the nets cleared constantly. The station served as a demonstration area for two junior garden clubs, one senior garden club, two school groups and many individuals. All birds were fully processed: wing measured, fat class recorded, and weight taken.

We had our usual few predator problems with hawks, turtles, and we think snakes; we caught only one Pigeon Hawk, deported the turtles, and closed the nets one day when a Red-shouldered Hawk stood guard. And so ends the tenth year of banding at Damsite.

Dorothy A. Mendinhall, RD 2, Chestertown

Irish Grove

On Sept. 3, 1969, a banding station was set up to study the fall migration at Irish Grove Wildlife Sanctuary in Somerset County. It was the hardest day I have ever had in setting up a station—hot, humid, deluged with mosquitoes, "sheep flies" (as the local people call them), and grasshoppers. By nightfall I had put up six nets and had banded and processed 46 new birds of 20 species, and 3 "returns" (birds originally banded there between November 1968 and May 1969).

As the days passed, I learned to cope with the insects and began to add one or two nets each day. After the first week, assistants came for one or two days at a time and helped tremendously in cutting new lanes and putting up nets. Banding was slow, but time was never wasted as the

old garage, which I had chosen to be the office for processing birds, needed much cleaning, shelf construction, and window repair. On Sept. 15, Mr. William L. Johnson and Mr. Charles B. Baker from the Wicomico Chapter came with their wives and wired the banding office, inside and out, so we would have ample light after dark. They donated both their time and materials to make our working conditions better. We banders certainly do appreciate this.

By Sept. 20, people were coming to help for a week at a time. As M.O.S. representative at Irish Grove, I let our neighbors know that groups from schools and organizations would be welcomed by appointment. The 'phone soon began to ring. All appointments were made for October as mosquitoes would not be so plentiful then.

September was an interesting month. We banded and processed 781 new birds of 73 species. Our biggest day was Sept. 30, with 72 new birds. By that date we were running 24 nets per day.

The six highest species for September were:

Catbird	126	Song Sparrow	54
Yellowthroat	115	Indigo Bunting	43
American Redstart	57	Brown Thrasher	31

October was a more satisfying month, birdwise. October 5 marked the beginning of flocks of Myrtle Warblers. About the middle of the month, Savannah Sparrows and Swamp Sparrows began to arrive in numbers.

Our first group of local visitors was the class in ornithology from Salisbury State College. Then we welcomed the Somerset Garden Club, an Historical Society group from Princess Anne, Girl Scouts from Crisfield, and individuals to help keep records and act as guides. A class of 28 Goucher College girls came from Towson for the week end of Oct. 18-19 to study marsh ecology and observe the banding.

All through October there was adequate help and, as in September, much was accomplished at our Sanctuary besides banding. There was repair work; wood was cut for the fireplace; the barn loft was cleared and cleaned for over-night camping guests; "No Hunting" signs were put up; and there was more cleaning and hauling away of trash.

The study of fall migration was conducted for two full months, Sept. 3 through Nov. 3; 4,109 new birds of 93 species were processed. Our eight highest species for the two months were:

Myrtle Warbler	1,624	Catbird	183
Song Sparrow	503	Yellowthroat	146
Savannah Sparrow	280	White-thrtd. Sparrow	97
Swamp Sparrow	272	Field Sparrow	89

We were pleased to recapture 6 of the 48 White-throated Sparrows we had banded last fall and early spring (12% return). Will they spend the winter with us? And how many will we re-net of the 97 just banded? This species is deserving of a special study at Irish Grove.

I feel that the educational projects as well as the banding studies which we have started have been a success. First, we have complete and consistent records, as all banders were careful and conscientious in keeping them. Secondly, we have tried to share our knowledge with our neighbors and to become a part of the community.

The success of this first large research and educational project at Irish Grove is due to the helpful advice and planning of Chandler S. Robbins and all the help and assistance from the following members of M.O.S.: Mr. and Mrs. William E. Brainard, Danny Bystrak, Paul G. Bystrak, Mr. and Mrs. Morrill B. Donald, Mr. and Mrs. Richard M. Douglass, Miss Reida Longanecker, Mr. and Mrs. E. A. Pepper, George Robbins, Capt. and Mrs. J. E. M. Wood, and Mr. Orrey P. Young. Out-of-State banders included: Mrs. Kathleen Anderson (Director of the Manomet Bird Observatory in Massachusetts), Mr. and Mrs. George Ballentine (West Virginia), Mrs. Constance Katholi (West Virginia), Mr. and Mrs. Herman Kuch (Pennsylvania), Mrs. Marion Metcalf (Vermont), Mr. John Trott (Virginia), and Mrs. M. Brantley Peacock (Virginia). We were also privileged with a visitor from overseas, Dr. Kenneth Williamson, who is Bird Migration Officer for the British Trust for Ornithology.

Gladys Hix Cole, 625 Valley Lane, Towson

#### Kent Point

The Kent Point O.R. station began operation on Aug. 16 and closed on Oct. 18. Until Sept. 15, nets were usually only opened for three or four hours in the morning; from Sept. 18 through Oct. 7, the station operated daily from dawn to dark and from then on for varying lengths of time on whatever days banders could arrange to be present.

The season was one of the poorest experienced at this station in its six years of operation, both in total species (92) and in total birds banded (3,600). This is probably because Kent Point has its greatest number and variety of birds when northeast winds are prevalent, and winds this fall were from every other possible direction! There were few days with small numbers and few with large. Only two new netted species were added to the station list: Sparrow Hawk and Mourning Dove.

Other than the expected large number of Blue Jays (1,019), no other species was caught in unusually high numbers except Black-throated Blue Warblers (134). Myrtle Warblers were abundant on only one day and this contributed substantially to the lower total birds banded for the season. One banded bird, a Blue Jay, was caught on Oct. 4; it had been banded by J. R. Cohen on Long Island. [Date of banding is not yet available—Ed.]

We were once again fortunate to have members of the Anne Arundel Chapter assist us. They invariably appeared when they were most needed, and they provided expert record-keeping in addition to helping weigh, remove birds from nets, and even volunteering to feed the banders.

Eight banders worked for various lengths of time in usually pleasant weather. The main banding tent collapsed from an accumulation of water on its roof but was useable within an hour after the arrival of Jay Nixon and Paul Bystrak early the same morning. Stable flies and mosquitoes seemed unusually abundant, but the monarch butterfly, which had in other seasons appeared in enormous numbers, was seldom seen. If northeast winds mean more birds and butterflies and fewer flies and mosquitoes, all Kent Point banders look forward to these winds with pleasure.

Jane P. Church, 2335 North Edgewood, Arlington, Va.

#### Monkton

Nets were operated on 17 days during September and October for a total of 535 net-hours. A total of 299 birds of 36 species were banded. The four species with the highest number of individuals banded were: Slate-colored Junco 50, Wood Thrush 37, White-throated Sparrow 29, and Chipping Sparrow 27. The best day for banding at this station was Oct. 19, when 35 new birds of 10 species were processed.

Stephen W. Simon, Bluemount Rd., Monkton

#### Ocean City

This was a short season for the Ocean City station. Banding did not begin until Sept. 9, and the nets were taken down on Sept. 29. Netting effort within this period was significantly below that of prior years, as only 20 to 28 nets were operated during the first half of the period instead of the usual 35. Consequently, the number of birds banded was only 2,234, the fewest since 1959. Seven birds returned from prior years, all of them summer residents. There were also 943 captures of "repeats" that were processed again in order to compile records of length of stay of migrants, to study changes in weight, to check measurements of the same birds made by different banders, and to study characters used in ageing and sexing the birds.

No birds from other stations were captured at Ocean City this season, and, so far as is known, none of the Ocean City birds were taken at other O.R. stations.

In addition to the usual weights and measurements that are routinely recorded for all Ocean City Operation Recovery birds, several special projects were continued this year. One of these was a study of the frequency of occurrence of ticks on the various species of birds. Of 633 birds examined, 110 were carrying ticks either in the ears or elsewhere on the head. Brown Thrashers had not only the highest frequency of tick infestation, but also the largest average number of ticks per bird. One thrasher had 54 ticks; the next highest counts were 38 and 27. Of the 20 species of birds that were found harboring ticks, ground-feeding species such as the thrushes and sparrows had the highest rates of occurrence.

It was unusual to find ticks on a Brown Creeper and a Red-breasted Nuthatch. Warblers, except for the Yellow-breasted Chat, are generally free of ticks; yet ticks were found this season on 9 species of warblers including the Worm-eating, Cape May (5 ticks on one), Mourning, Connecticut, and American Redstart. Other projects were the study of plumage and "soft-part" characters as an aid in determining age and sex; the collection of single tail feathers from several dozen known-aged birds to study the structure, shape, and coloration of tail feathers as related to age and sex; and, in cooperation with Mr. Orrey P. Young and the encephalitis research program of Walter Reed Army Medical Center, the collection of blood samples from 61 banded birds of a dozen species.

Special thanks are extended to banders Danny Bystrak, Margaret Donald, Larry Hood, Jim Shiflett, and Ted Van Velzen, and to the "regular" assistants who helped with many phases of the operation for several days this year: Bill Anderson, Matthew Baird, David Cox, John Feldman, C. John Ralph, Jeff Rusinow, John Trott, and Aldeen Van Velzen.

C. S. Robbins, Bureau of Sport Fisheries and Wildlife, Laurel

#### MORE ON THE PARADISE CRANE

Mr. and Mrs. Carl Long, who have taken some magnificent colored slides of the Paradise Crane at Mitchell Park, Durban, South Africa, sent some for comparison with Leon Rhodes' photo that appeared in the September 1968 issue of Maryland Birdlife (24: 71). The Longs pointed out that the Paradise or Blue Crane is the National Bird of South Africa and is figured on their five-cent piece. We want to thank Mr. Jim Feely of Zululand Safaris (P.O. Box 79, Hluhluwe, Zululand, Republic of South Africa) for calling attention to an error in the Maryland Birdlife account. The long wing feathers that are so characteristic of the Blue Crane are not primaries, but secondaries. In response to our concern as to whether this crane might be able to survive the Maryland winter, Mr. Feely pointed out that the Blue Crane is regularly subject to some snow and sleet in its winter range in Africa. The crane did survive the winter at Blackwater Refuge, where it remained until April 25, 1969. What was probably the same individual was photographed near Easton, Pa., later in the spring.--Ed.



#### FIELD LIST OF THE BIRDS OF MARYLAND by C. S. Robbins & W. T. Van Velzen

This up-to-date list of the birds of Maryland, complete with relative abundance, dates of occurrence and nesting, habitats, a map and list of 50 choice birding areas in Maryland, and space for recording 12 field trips, is available through your local Chapter or M.O.S. Bookstore. Price 35¢ (50¢ by mail). Quantity discounts to members. 44 pages.



## THE PRESIDENT'S PAGE

Just as the vintner speaks of "vintage years," so do we speak of "northern finch years." This year has all the promise of being one, and if so, the arrival of these rarer species is bound to attract the attention of folks who do not commonly give a bird a second look. As many of you must, I get numerous calls from people who have seen something new and strange and wish to have it identified.

Some of the descriptions are a bit sketchy, some imaginative and some humorous, like the one which reported the bird as being "something like a kangaroo" (it was a Great Blue Heron). I am always anxious to help, if I can, for it is sometimes a simple occasion like this that starts an individual on a lifetime hobby, or even a career.

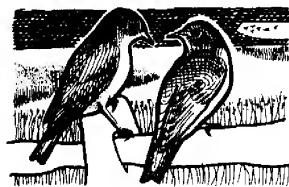
While Evening Grosbeaks have already been sighted in many parts of the State, their numbers are not comparable to the "invasion" of 1968-69. Noticeable this year are numerous sightings of Red Crossbills and Pine Siskins. In addition to these and other finches, increased numbers of Snow Buntings, Black-capped Chickadees, and Red-breasted Nuthatches have been observed. All of this adds up to the promise of an interesting season ahead.

As I write this, a Ruby-crowned Kinglet is flitting about in the shrubbery outside my window, spending most of his time in an eleagnus bush where he finds a goodly supply of insects on the underside of the leaves. Kinglets are winter residents here but they frequent the residential areas rarely enough that their presence is a special treat. Maybe I should mention here that this eleagnus (*E. pungens*) seems to attract more feathered visitors than any other piece of shrubbery in my yard. Chickadees come almost daily to feed on the insects it harbors. Over the years, I've observed Cardinals, Catbirds, juncos, Song Sparrows, White-throats, nuthatches, a chat, a Nashville Warbler and a sapsucker dining here. Naturally, the insects are welcome; no DDT here! An added dividend from this plant is the pronounced fragrance of its blossoms, which appear in October and November.

While I write of species I've seen and expect to see here on the central Eastern Shore, those of you in other areas of the State may also expect exciting birds this winter, such as the White-winged Crossbill, Common Redpoll, Pine Grosbeak, and even the Boreal Chickadee. Wherever you live, your search is almost bound to be fruitful and the coming season should long remain in your memory.

V. Edwin Unger





## THE SEASON

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JULY, AUGUST, SEPTEMBER, 1969

*Chandler S. Robbins*

July was exceedingly wet in the Middle Atlantic States, with precipitation two to three times the normal amount in the Chesapeake Bay area. This produced a lush growth of vegetation and an abundance of natural food for wildlife. Temperatures in the northeastern states were decidedly on the cool side in July, but there was no evidence that low temperatures to the north of us triggered an early southward movement of passerine migrants.

In August the temperature pattern in the eastern states was reversed, with subnormal mercury readings in the Southeast and above-normal temperatures in the Northeast. As a result, the peak movement of such typical August transients as the Veery and the *Empidonax* flycatchers spilled over into September. Rainfall was slightly below normal in both August and September, but was sufficient to maintain ground moisture at a high level. Temperatures hovered close to normal during the first half of September, then took a slight dip in the last two weeks.

Field ornithologists are very much aware of the intensity, speed and direction of movement of cold fronts during the autumn months, because the heaviest southward migrations generally take place in the cool air masses that typically follow cold-frontal passage. Not a single cold front vigorous enough to cause a  $10^{\circ}$  drop in temperature from the minimum reading of the previous day crossed Maryland between July 1 and Aug. 20. But the front of the 20th brought a good variety of flycatchers and warblers to the banding stations in Kent and Queen Annes Counties (Table 1) on the next two days.

The next cold front passed through on the 26th and brought a heavy influx of birds on the 27th. The commonest transients on that day were the Canada Warbler (15 at Kent Point, 12 at Damsite) and Yellow-bellied Flycatcher (10 at Kent Point). Ovenbirds, Veeries, and Least and Traill's Flycatchers were well represented. The Mendinhalls banded a late Louisiana Waterthrush at Damsite and also caught their first Swainson's Thrushes, Rose-breasted Grosbeak, and Magnolia, Mourning, and Wilson's Warblers of the season. The Kent Point banders also netted their first Swainson's Thrush and Red-eyed Vireo.

The next cold front did not arrive until nearly 2 weeks later. The front itself passed over on Sept. 8, followed by low temperatures (at Salisbury) of  $54^{\circ}$  on the 10th and  $45^{\circ}$  on the 11th. The resulting influx

Table 1. Fall Arrival Dates, 1969

Species	W.Ma	Fred	Balt	Harf	Howd	Mont	Pr.G	Anne	Kent	QuAn	Caro	Talb	Somr	Worc
Canada Goose	9/28	9/26	10/4	9/17	9/26	10/4	10/4	9/19	9/12	9/18	9/27	9/10	9/30	9/29
Sharp-shinned Hawk	--	9/20	8/30	9/13	9/9	9/24	--	--	8/24	9/21	--	9/21	9/23	9/20
Broad-winged Hawk	--	9/20	8/27	9/5	9/1	9/21	--	9/14	--	0	--	8/17	0	0
Sparrow Hawk	9/12	--	9/14	--	9/1	--	--	--	8/4	7/10	--	8/8	9/8	9/26
Semipalmated Plover	0	9/24	0	0	0	9/15	0	8/10	0	0	0	9/21	8/19	7/13
Common Snipe	--	--	--	--	9/27	--	8/21	8/15	12/1	0	9/27	--	--	--
Spotted Sandpiper	--	--	8/30	8/24	8/28	--	--	8/7	--	7/22	--	8/17	--	7/4
Greater Yellowlegs	0	8/27	0	0	10/3	0	0	--	--	7/29	8/1	8/10	9/30	7/12
Lesser Yellowlegs	0	9/24	0	0	0	0	0	8/15	0	0	8/6	9/20	--	7/29
Pectoral Sandpiper	0	9/24	0	0	10/14	9/13	0	8/10	0	7/29	0	0	9/30	0
Least Sandpiper	0	9/24	0	0	9/20	9/15	0	8/10	0	0	0	9/12	--	7/26
Semipalmated Sandpiper	0	9/20	0	0	0	0	0	8/10	0	0	0	8/30	0	7/7
Sanderling	0	9/24	0	0	0	9/15	0	8/10	0	8/12	0	10/1	0	7/27
Yellow-billed Cuckoo	8/24	--	9/21	--	9/23	--	8/2	--	8/17	9/17	9/13	8/2	9/29	9/21
Black-billed Cuckoo	--	0	9/11	0	0	0	0	0	0	9/20	--	9/27	0	9/11
Common Nighthawk	--	--	8/23	9/1	8/17	8/19	8/17	8/24	8/23	0	8/24	8/17	--	8/29
Yellow-shafted Flicker	--	--	--	10/5	9/25	9/21	--	9/30	9/9	9/11	--	9/22	--	9/11
Red-headed Woodpecker	--	--	9/2	0	9/14	--	0	0	0	0	0	9/28	0	9/11
Yellow-bell. Sapsucker	--	10/1	9/28	--	9/27	9/13	--	9/26	9/24	9/30	--	9/27	9/29	9/24
Eastern Phoebe	--	--	--	10/5	9/25	9/24	--	--	9/29	9/22	--	9/27	9/29	9/24
Yellow-bell. Flycatcher	0	0	0	0	0	0	0	0	8/21	8/19	0	9/13	9/19	9/10
Traill's Flycatcher	--	--	8/31	0	--	0	0	0	0	8/21	0	8/23	9/3	9/10
Least Flycatcher	--	8/18	0	0	0	0	0	0	8/21	8/22	0	8/23	9/5	9/9
Tree Swallow	--	--	8/27	8/17	7/7	9/13	0	--	8/29	7/7	7/10	7/12	--	8/23
Blue Jay	--	--	9/17	9/8	9/23	9/20	9/20	9/4	9/21	9/9	--	9/12	9/29	9/24
White-breasted Nuthatch	9/5	--	9/27	9/1	7/26	--	--	11/16	10/30	0	9/16	0	0	--
Red-breasted Nuthatch	0	--	9/13	10/5	9/1	9/23	10/5	9/26	9/13	8/27	9/30	8/31	10/10	9/9
Brown Creeper	--	10/12	9/28	8/25	9/30	9/21	10/26	10/7	9/23	9/19	9/30	9/27	9/23	9/21
Winter Wren	--	--	10/10	9/20	9/28	--	--	10/11	9/30	9/26	--	9/29	10/12	9/19
Swainson's Thrush	9/10	--	9/11	0	9/12	9/23	--	9/18	8/27	8/27	9/30	8/31	9/10	9/10
Gray-cheeked Thrush	0	0	10/5	0	9/28	0	0	0	9/30	9/17	--	9/14	9/30	9/19
Veery	--	--	9/14	9/1	9/10	0	0	0	8/27	8/27	--	8/31	9/10	9/9
Golden-crowned Kinglet	--	10/11	10/12	10/5	9/21	10/5	10/6	--	10/1	10/4	10/6	9/21	10/15	9/20
Ruby-crowned Kinglet	--	10/5	9/21	10/5	9/20	9/15	10/8	9/24	9/13	9/11	10/1	9/21	9/22	9/23
Cedar Waxwing	10/8	--	8/27	9/20	9/20	9/15	9/7	8/24	8/11	8/13	9/28	8/22	9/16	9/9
Loggerhead Shrike	0	0	0	0	0	0	0	0	9/3	8/27	8/21	0	9/10	--
Solitary Vireo	--	0	10/6	0	9/20	9/29	0	0	10/19	9/30	0	10/11	10/5	9/15

Species	W.Md	Fred	Balt	Harf	Howd	Mont	Pr.G	Anne	Kent	QuAn	Caro	Talb	Somr	Worc
Red-eyed Vireo	--	--	8/27	--	9/ 1	--	--	9/22	8/27	8/27	9/19	9/21	9/10	9/ 9
Philadelphia Vireo	0	0	0	0	0	0	0	0	9/30	--	0	9/27	9/12	9/11
Black-&-white Warbler	--	--	8/30	8/25	8/20	8/24	--	--	8/21	8/16	--	8/23	9/10	9/10
Tennessee Warbler	0	0	9/13	0	8/22	9/29	0	0	8/31	9/ 8	0	8/23	0	9/10
Nashville Warbler	0	8/29	8/30	0	8/22	9/29	0	9/26	9/13	9/ 9	0	9/20	10/ 5	9/14
Parula Warbler	--	--	--	--	9/16	9/27	--	--	10/ 4	9/19	0	9/20	10/ 4	9/11
Yellow Warbler	--	--	8/30	--	8/31	--	--	9/11	0	8/27	--	0	9/ 6	9/10
Magnolia Warbler	--	9/11	9/ 2	0	8/28	9/14	9/ 7	9/11	8/27	9/ 6	9/16	8/30	9/13	9/10
Cape May Warbler	0	0	0	0	0	0	9/ 7	10/ 4	8/22	8/30	--	9/20	9/12	9/ 9
Black-thr. Blue Warbler	--	0	9/20	0	9/ 9	8/23	0	0	8/26	8/30	--	9/14	9/10	9/10
Myrtle Warbler	--	10/ 4	9/28	10/ 5	9/28	10/ 5	--	10/ 1	9/23	9/19	10/ 7	9/20	9/29	9/19
Black-thr. Green Warbler	--	--	9/11	0	8/22	9/13	0	9/14	9/ 9	9/11	0	9/27	9/29	9/11
Blackburnian Warbler	--	--	9/ 2	0	8/21	9/14	0	0	8/24	9/11	0	9/29	0	9/26
Chestnut-sided Warbler	--	--	9/ 2	0	8/27	8/28	0	9/26	8/30	8/22	0	9/29	9/29	9/ 9
Bay-breasted Warbler	0	0	0	0	0	9/15	0	0	9/13	9/ 8	0	0	0	9/10
Blackpoll Warbler	0	0	9/28	0	9/ 3	10/11	0	0	9/19	9/ 5	0	9/21	9/29	9/10
Palm Warbler	0	0	0	0	10/ 5	0	0	0	9/29	9/14	0	9/20	9/19	9/13
Ovenbird	9/10	9/20	9/ 2	--	9/14	--	--	--	8/21	8/22	--	8/16	9/11	9/ 9
Northern Waterthrush	--	0	0	0	0	0	0	0	8/22	8/13	--	8/16	9/ 3	9/ 8
Connecticut Warbler	0	0	9/13	0	0	9/27	0	0	9/14	9/ 9	0	9/14	9/12	9/10
Mourning Warbler	0	0	0	0	0	0	0	0	8/27	8/31	0	8/30	0	9/10
Wilson's Warbler	0	9/ 6	0	0	9/19	0	0	9/10	8/27	9/ 8	0	9/21	9/14	9/10
Canada Warbler	--	0	9/11	0	8/21	8/25	9/ 7	0	8/20	8/21	0	8/30	9/10	9/10
Redstart	--	9/21	9/11	--	7/31	9/13	9/ 7	9/ 7	8/21	8/21	--	8/ 2	9/10	9/ 9
Bobolink	--	--	9/18	0	0	0	9/ 7	0	9/ 3	8/21	8/25	8/ 2	--	9/22
Baltimore Oriole	8/30	8/25	--	--	9/22	9/15	--	8/ 9	8/21	8/31	9/ 8	8/ 2	--	9/10
Scarlet Tanager	--	--	--	--	9/ 1	--	--	--	8/25	9/ 6	9/28	9/13	--	9/10
Rose-breasted Grosbeak	9/12	10/ 1	9/11	0	9/12	9/29	9/24	9/21	8/27	9/17	9/10	9/14	9/11	9/10
Purple Finch	0	0	10/15	11/ 2	9/26	9/29	--	10/26	8/20	9/11	--	9/21	9/11	9/22
Rufous-sided Towhee	--	--	--	--	10/10	9/30	--	9/30	9/30	9/26	--	9/21	--	--
Savannah Sparrow	--	9/20	--	0	0	0	10/ 9	--	10/ 9	9/19	--	10/ 1	9/16	9/21
Slate-colored Junco	9/10	10/ 6	9/19	9/15	9/27	10/ 5	--	10/19	9/29	10/ 2	10/20	9/30	10/ 7	9/29
White-throated Sparrow	10/ 9	10/ 6	9/21	--	9/23	9/29	10/10	10/ 5	9/26	9/19	10/ 6	9/28	9/29	9/15
Lincoln's Sparrow	0	0	0	0	9/27	0	0	0	8/25	9/26	0	9/20	9/28	9/27
Swamp Sparrow	--	--	10/12	9/ 1	10/ 5	9/29	--	--	10/24	9/28	--	9/27	9/30	9/25
Song Sparrow	--	--	10/11	--	9/26	--	--	--	10/12	9/27	--	9/30	9/27	9/22

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of transients was the second heaviest of the month at Ocean City and Irish Grove. Three banding stations were not in operation those days; the other three O.R. stations all had their seasonal peak of Veeries on the 9th (Kent Point) or 10th (Irish Grove and Ocean City). Other species that figured prominently in this flight were: Yellow-bellied Flycatcher (O.C.), Red-eyed Vireo (O.C. and I.G.), Black-and-white, Magnolia, Black-throated Blue, Ovenbird, Northern Waterthrush, Yellowthroat, Canada Warbler, and American Redstart (the above warblers at all 3 stations), and Bay-breasted Warbler (K.P. and O.C.).

In contrast to the first half of September, which favored Maryland with but a single cold front, three strong fronts swept over the Free State in the latter half of the month. Prior to these, however, northwest winds that were not associated with frontal passage brought the season's peak of Red-eyed Vireos (30), Philadelphia Vireos (9), Cape May Warblers (12) and Northern Waterthrushes (38) to Ocean City on the 14th.

The cold front of Sept. 17-18 caused a big invasion at Kent Point, with the following seasonal peaks on the 19th: Black-and-white Warbler (41), Ovenbird (17), Northern Waterthrush (25), and American Redstart (59). Damsite, in the next county to the north, did not share in the invasion; they had no more than one apiece of these four species. Irish Grove and Ocean City fared only a little better.

The front of the 24th again favored Kent Point. Their commonest birds on the 26th were the Brown Creeper (10), Swainson's Thrush (14), Magnolia Warbler (14), Black-throated Blue Warbler (12), Yellowthroat (15), and American Redstart (14).

The truly spectacular migration of the month occurred on Sept. 29-30, following the cold front of the 28th. Salisbury temperatures dropped to 47° on the 29th and 39° on the 30th, for the coldest reading of the month. Winds were light north-northeast during the night of Sept. 28-29, and calm the next night, producing favorable conditions at all Maryland O.R. stations on both days. Although no species except Wood Thrush reached its seasonal peak at all five of the O.R. stations that were manned on Sept. 29-30, four stations registered their seasonal high for the Swainson's Thrush, Catbird, Red-eyed Vireo, Black-throated Blue and Black-throated Green Warblers on one of these two days. The Magnolia Warbler, Ovenbird and Yellowthroat were also among the commonest birds on both days. Harry Armistead saw 76 species at his Bellevue home on the 30th.

Table 1 gives a summary of the first fall arrival dates reported from those Maryland counties that had the most active observers during the three months. Records for Garrett, Allegany, and Washington Counties are combined under the heading Western Maryland, and were submitted by Kendrick Y. Hodgdon and Mrs. Lloyd L. Mallonee. The principal contributors for the other counties were as follows: Frederick County--John W. Richards, William N. Shirey, Nell Cooley, Mary Porter, William Corliss, Fred Evenden; Baltimore City and County--Stephen W. Simon, Mrs. Richard D. Cole, C. Douglas Hackman, Irving E. Hampe, Mr. and Mrs. Malcolm Thomas, Mrs. W.F. Gerringer, Mrs. Raymond Geddes; Harford and Cecil: Dr. Edgar E. Folk,

C. Douglas Hackman, Joseph Pannill, Rev. Walden Pell II; Howard--Mrs. Harry B. Rauth, Mr. and Mrs. Robert C. Mallalieu, Morris Collins, Mrs. G. C. Munro; Montgomery--Mrs. John Frankel, Robert W. Warfield, Carl W. Carlson, Nell Cooley, Jim Cooley, Sarah Baker; Prince Georges--Chandler S. Robbins, Paul and Danny Bystrak; Anne Arundel--Prof. and Mrs. David Howard, Danny and Paul Bystrak, Harold Wierenga, Dr. Lawrence W. Murphy; Kent--Mr. and Mrs. Edward Mendinhall, Mrs. Arline Delario; Queen Annes--David Bridge, Paul and Danny Bystrak, Kathy Klimkiewicz, Mrs. Herbert Church, Paul Woodward; Caroline--Mr. and Mrs. A.J. Fletcher, Marvin W. Hewitt, Ethel Engle, Alicia Knotts, Margarete Butenschoen, V. Edwin Unger; Talbot--Harry T. Armistead, Jan Reese, John Valliant; Somerset (all on Irish Grove Wildlife Sanctuary)--Mrs. Richard D. Cole, Richard Douglass, Marion Metcalf, Mr. and Mrs. Aldridge Pepper; Worcester--Danny Bystrak, Bill Anderson, Larry Hood, Jim Shiflett, Mr. and Mrs. John Trott, Matt Baird, Chandler S. Robbins, Mr. and Mrs. T. H. C. Slaughter, Robert W. Warfield. A dash indicates that the species was recorded, but no significant arrival date of transients was noted. A zero means no report was submitted. Dates based on banded birds are underscored, indicating those identifications were of birds carefully examined in the hand.

Shearwaters, Cormorants. In addition to the Greater Shearwaters discussed by Bridge, et al., on pages 111-116, the remains of one that had been dead for a few days were found on July 7 on the beach at Ocean City by Robert Warfield. Jan Reese remarked that he had never before seen Double-crested Cormorants so common in Chesapeake Bay in the summer months. He found them to be present in Talbot County from late July through the end of the period; his high counts were 16 each on Aug. 12 and Sept. 12.

Cattle Egrets. Cattle Egrets were seen regularly through the period in pastures on the lower Eastern Shore--this in marked contrast to 1967 and prior years, when they were largely confined to coastal localities in the late summer and fall. As many as 12 were counted in Talbot County on Aug. 8 and 2 individuals were still present there as late as Sept. 28 (Jan Reese). Flocks of 20 or more birds were seen daily near Irish Grove Sanctuary (Mrs. Richard Cole). Closer to the coast, Dickson Preston, Don Meritt and Jan Reese found more than 300 in a single field on Aug. 29.

Swans and Geese. Five Whistling Swans summered at the east end of the Chesapeake Bay Bridge, until disturbed by construction of the new span. Robert Warfield saw 2 Mute Swans at the West Ocean City pond, July 28 to Aug. 2, and Ethel Engle reported 4 birds in the Choptank River marsh near the Tanyard bridge (route 331) on Aug. 9--the first sighting in that area. Only 1 Mute Swan was found on Linchester Pond at Preston (Sept. 1, Marvin Hewitt). John Valliant found a very early Snow Goose (second earliest State record) with a flock of Canadas in Talbot County on Sept. 26.

Hawks and Eagles. Very early migratory movement of Broad-winged Hawks was detected on Aug. 17 when Jan Reese saw 3 birds circling low over Chesapeake Bay about 3 miles from the Talbot County shore. This is unusual behavior for Broad-wings, which normally attain considerable altitude before attempting a water crossing. Mrs. Harry Rauth counted 52 Broad-wings in migration over her home in Highland, Howard County, on



Sept. 13, and Douglas Hackman counted 560 in two parallel flocks over the Timonium Fair Grounds on Sept. 18. If you should see a Harris Hawk in the Vicinity of Bel Air in Harford County it is undoubtedly the one that escaped from David Smith a year ago; this tropical bird managed to survive the cold weather last winter and is still frequently seen in the Harford Furnace area. Five of the 8 Bald Eagles reported were in adult plumage.

Shorebirds. Prof. Wierenga had the good judgment to visit Sandy Point State Park on Aug. 10; on this day shorebirds migrating behind a cold front overtook the slow-moving front over Chesapeake Bay and were "grounded" by heavy rain. Although numbers of individuals were rather small, his list of 11 species seen within the park is almost sensational for an Upper Chesapeake location: Semipalmated Plover (8), Piping Plover (1), Killdeer (11), Ruddy Turnstone (5), Spotted Sandpiper (3), Pectoral Sandpiper (6), Least Sandpiper (1), Semipalmated Sandpiper (3), Western Sandpiper (3), Marbled Godwit (1), and Sanderling (7). He saw a Stilt Sandpiper there on Aug. 5 and Aug. 6, and a Wilson's Phalarope (the only Maryland record this fall) on Aug. 19. Inland, the Summit Hall turf farm five miles west of Seneca again took top honors for excitement; on Sept. 13 and 15 the commonest shorebird next to the Killdeer was the Am. Golden Plover, with 9 individuals each day (Nell and Jim Cooley, Sarah Baker). Two Buff-breasted Sandpipers seen there on the first date by the Cooleys were not seen subsequently. Upland Plovers (8) were last noted at Buckeystown on Aug. 27 (James Emerson). From 1 to 4 Marbled Godwits were present almost daily on the 6th St. Flats at Ocean City, Aug. 11 to Sept. 1, and as many as 8 were counted on Sept. 27 (Warfield).

Gulls, Terns, and Skimmers. A Bonaparte's Gull appeared at Sandy Point as early as Aug. 13 and a different individual was there on the 15th (Lawrence Murphy). Also early was a Black Tern at West Ocean City on July 4 (Warfield). For the second year in a row Black Skimmers wandered up the Bay as far as Talbot County; Don Meritt sighted 3 of them near Newcomb on Aug. 17.

Cuckoos. Douglas Hackman made an interesting observation of a migrating Yellow-billed Cuckoo. He watched the bird arrive from the north-east at a high altitude late in the afternoon on Sept. 21; then it foraged for about an hour in Mimosa trees at his parents' home in White Marsh. Cuckoos typically migrate by night. Has anyone else seen evidence of their migrating in the afternoon?

Owls, Nighthawks. The Saw-whet Owl nests regularly in Garrett County, but has been recorded only twice at lower elevations in Maryland in summer: in 1903 near Cumberland and in 1957 at Emmitsburg, both in July. On June 14 Linda Buell picked up an injured one in western Montgomery County between Poolesville and Whites Ferry. It died and is now preserved as a specimen at the National Museum. Douglas Hackman made daily counts of migrating Common Nighthawks at Towson, starting between 5:30 and 6:00 p.m. and continuing until dark. The heaviest flights took place on Aug. 23 (51 birds), Aug. 30 (229 in 45 minutes), Sept. 5 (58), and Sept. 6 (95). The last nighthawk seen by Mr. Hackman was on Oct. 1. At Silver Spring, Thomas Valega saw a concentration of 100 at 5:30 p.m. on



Sept. 3; he noted smaller flocks over nearby communities the same evening.

Flycatchers. Eastern Kingbirds disappear from most inland localities in late August, but small flocks of migrants can still be found along the coast into September, often moving southward just above the trees. Active migration in fall is seldom observed at inland locations, but on Aug. 27 Douglas Hackman counted 18 birds flying southwestward above the trees at White Marsh just after dawn. The only Western Kingbird of the fall was seen on Sept. 27 at the Summit Hall Turf Farm west of Seneca by Carl Carlson, who found an Olive-sided Flycatcher there the same day.

Swallows. The Tree Swallow, which is usually our first landbird to start its fall migration, was first noted at Highland (Dorothy Rauth) and on Kent Island (David Bridge) on July 7. Four weeks later, on Aug. 2, Jan Reese and Dick Kleen witnessed an imposing flight of migrating swallows in the half-hour preceding sunset at Wye Island. They estimated 7,000 each of Tree and Bank Swallows and about 1,500 Barn Swallows.

Jays, Nuthatches. Professor and Mrs. David Howard in Annapolis were the first to detect Blue Jay immigrants, Sept. 4. The first "big day" was Sept. 21, when hundreds passed over Towson, Kent Point (84 banded), and St. Michaels. Jan Reese estimated in excess of 3,000 over the St. Michaels area on Sept. 28. Whenever Red-breasted Nuthatches appear in Maryland in late August or the first week in September it means a heavy flight of this species is to follow. This year the initial sighting was on Aug. 27 (at Kent Point by David Bridge), breaking the early fall arrival date by 3 days. In the next few days other Red-breasts arrived at Bellevue on Aug. 31 (Armistead) and near Atholton on Sept. 1 (Shirley and Robert Mallalieu). At Ocean City the flight was the heaviest recorded in 15 years of banding there; 72 were banded, Sept. 9-29. The best day was Sept. 19 with 15 birds handled at Ocean City.

Gnatcatchers, Vireos. Harry Armistead operated his Bellevue banding station on all five week ends in August as well as on 13 days in September and 12 days in October. The fact that the last of his 3 Blue-gray Gnatcatchers was captured on Aug. 17 may explain why so few of this common summer resident species are seen by most of us during the fall migration. One of the special features of Irish Grove Wildlife Sanctuary is the abundance of White-eyed Vireos--a species that is encountered only 3 to 5 times a year at the other Maryland banding stations. From 1 to 4 were banded almost every day in the first half of September by Mrs. Cole. Philadelphia Vireos, on the other hand, are scarce at all but the Ocean City station, where this year's total of 33 birds was the second-highest in 15 years.

Warblers. Several warblers, especially the Tennessee, Nashville, and Cape May, reached Maryland unusually early this fall. These three species were all seen during the big warbler wave on Aug. 22, the first two species at Highland (Mrs. Rauth) and the Cape May banded at Tolchester (Damsite) by the Mendinghalls. The Nashville and Cape May Warblers established new fall arrival dates for Maryland. The initial records were

followed by other sightings well ahead of the normal arrival times of these species. For example, Harry Armistead saw a Tennessee Warbler at Bellevue on Aug. 23, John Richards found a Nashville Warbler at Emmitsburg on Aug. 29, and Gladys Cole banded a Nashville at Towson on Aug. 30-- still ahead of the earliest previous fall arrival date for Maryland. Orange-crowned Warblers, which typically migrate through Maryland in small numbers in October and November, were seen on two September dates: Sept. 27 near Seneca (Carlson) and Sept. 29 at Bellevue (banded by Armistead). Some maximum one-day banding totals will demonstrate not only the approximate time of peak movement, but also which localities were most favored by the different species (Table 2).

Table 2. Comparison of Peak Banding Days at Five Stations

	<u>Damsite</u>	<u>Kent Pt.</u>	<u>Bellevue</u>	<u>Irish Grove</u>	<u>Ocean City</u>
Black-&-white	3 9/30	41 9/19	5 8/30	2 2 days	13 9/11
Nashville	2 9/14	4 9/29	2 10/1	1 10/5	2 2 days
Tennessee	5 9/ 8	4 9/ 8	0 -	0 -	2 2 days
Cape May	3 6 days	4 9/11	8 9/21	1 3 days	12 9/14
Blk-thr. Blue	15 9/29	17 2 days	7 9/29	3 10/6	8 2 days
Magnolia	6 9/29	30 2 days	6 9/14	4 9/29	8 9/27
Chestnut-side	1 2 days	2 2 days	1 9/29	1 9/29	3 9/10
Bay-breast	3 8/15	5 9/26	0 -	0 -	6 9/11
Blackpoll	13 9/29-30	6 9/28	5 10/4	2 10/15	17 9/26
Palm	1 9/29	2 2 days	2 10/19	11 10/15	6 2 days
Ovenbird	13 9/30	17 9/19	2 5 days	2 3 days	17 9/11
N. Waterthrush	2 5 days	25 9/19	3 2 days	2 3 days	38 9/14
Connecticut	2 2 days	1 6 days	1 4 days	1 4 days	3 9/14
Yellowthroat	4 9/30	15 9/26	14 9/30	12 9/11	13 9/29
Chat	1 6 days	2 2 days	1 2 days	1 8 days	6 9/28
Wilson's	3 8/27	3 9/29	3 9/29	1 9/14	3 9/10
Canada	12 8/27	16 9/ 7	4 8/30	3 9/10	12 9/10
Am. Redstart	6 2 days	59 9/19	8 9/20	14 9/11	69 9/11

Bureau of Sport Fisheries and Wildlife  
Migratory Bird Populations Station, Laurel

### BLUE JAYS ADOPT A HAND-REARED YOUNG

Madeleine Buterbaugh

On June 5, 1969, a neighbor brought me a young Blue Jay (*Cyanocitta cristata*) they had found while on the eastern shore. This young "kidnap" victim was healthy and well-fed, but not yet feathered enough to fly. As soon as the bird had recovered from its fright and learned to recognize us as the source of nourishment, we put it outdoors in a small dogwood tree and took food to it. The first afternoon we twice saw an adult Blue Jay inspect the young one very closely for several minutes before returning to its nest 25 ft. above in an ash tree.

Both adults then ignored the young jay until 3 days later when it had become more active and had worked its way up to within 10 ft. of the nest. Then the male attacked twice, determinedly enough to leave the youngster hanging upside-down under the limb, though unhurt.

The next morning the young bird did not seem hungry, as it came down low enough to be fed only once during the entire morning. Fearing that it might be having trouble digesting its diet of hard-boiled egg and bread crumbs, we sat down to watch both the adult and the young. The young sat close by the brooding female on the nest where it was fed by both birds from time to time. Once it was on the edge of the nest when the female left, whereupon it hopped into the nest and waited for the old birds' return. The kidnapped bird was fed first, then the very small young in the nest got their share. The larger bird was fed several more times, either near the nest or at a distance. In late afternoon it flew down to join us, so we fed it a number of times to the apparent unconcern of the adults busy above with their own young.

Twice the following morning I found it down low enough to be fed, only to have the adult fly down to its defense in great alarm when I approached the youngster. Since the new parents had apparently taken the orphan completely in charge, we made no further effort to feed it. We saw it with the old birds for two or three more days, after which all activity around the nest ceased. Since it seemed too soon for the younger birds to have left the nest, we investigated and found the 2 nestlings dead.

4016 Bedford Rd., Baltimore

#### CONTRIBUTORS to IRISH GROVE WILDLIFE SANCTUARY

June 1st, 1969 - December 1st, 1969

Alexander, Arthur W.  
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## THE MOS BLUEBIRD PROJECT

Lawrence Zeleny

At a meeting of the Maryland Ornithological Society Trustees and Executive Council on October 11, 1969 the status of the Eastern Bluebird (Sialia sialis) was discussed and a decision made to organize a project designed to increase, if possible, the seriously depleted population of this species in the State.

The Eastern Bluebird population has been drastically reduced during recent years in most parts of its range, including Maryland. Continuation of this trend could result in the extirpation of this valuable bird before the end of the century. Although there are no doubt a number of factors responsible for this population decline, there is good evidence that a critical shortage of nesting sites available to the bluebirds may be one of the most important factors.

Bluebirds nest only in cavities of some sort, either natural or artificial. Old woodpecker holes and rotted out portions of dead trees and wooden fence posts are favorite nesting sites if they are in at least fairly open areas. Most dead trees in open places are now removed and wooden fence posts have been largely replaced by metal ones. Thus natural nesting sites acceptable to bluebirds are many fewer than in earlier years.

The greatest problem confronting the bluebirds, however, is not so much the actual shortage of cavities but rather the fact that both House Sparrows (Passer domesticus) and Starlings (Sturnus vulgaris) preempt most of the existing cavities that would be acceptable to bluebirds. Since these two imported birds have now overrun the country even in most rural areas, the bluebirds are faced with overwhelming competition for the relatively few cavities that are available. Bluebirds can rarely compete successfully with House Sparrows for nesting sites and never with Starlings. Although both House Sparrows and Starlings strongly prefer to nest in the same kind of cavities required by bluebirds, they do not actually require this kind of nesting site; hence, unlike the bluebirds, their populations are not restricted by the shortage of cavities.

Many of our native cavity-nesting birds avoid the problem of sparrow and Starling competition by nesting in wooded areas, which are usually shunned by these foreign species. Also the smaller cavity-nesting birds such as chickadees, nuthatches, and titmice can usually find cavities with openings large enough to accommodate them but too small for sparrows and starlings. Bluebirds, however, insist on nesting in reasonably open areas where both sparrows and starlings are likely to interfere. Also House Sparrows can enter any opening that bluebirds can enter; and since bluebirds require almost as large an opening as Starlings, there are few natural cavities that will exclude Starlings and still permit bluebirds to enter.

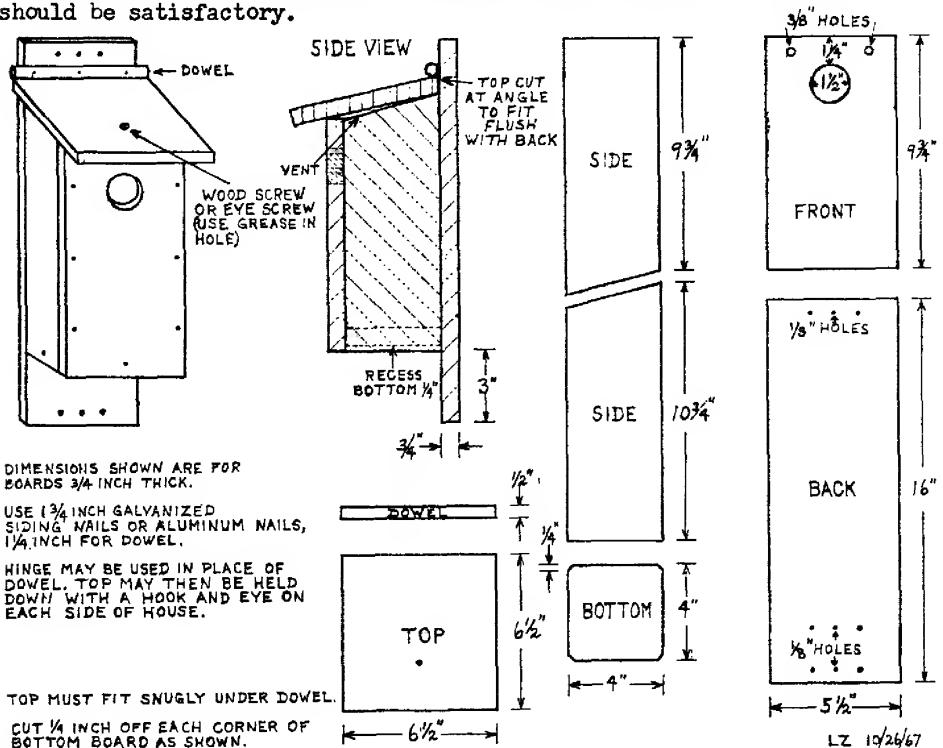
The best current solution to the problem seems to be to supply large numbers of properly constructed and properly located nesting boxes. These will provide bluebirds better protection against predators and reduce interference from foreign species. In most places where this has been tried a rapid local increase in the bluebird population has been noted within a few years. At the Agricultural Research Center at Beltsville, Maryland, for example, such a project has been underway for the past 3 years. Prior to 1950 bluebirds were fairly numerous at the Center during the breeding season and the Starling population was minimal. The Starling population increased rapidly after about 1950 and bluebirds were less frequently seen. For at least 10 years prior to 1967 careful observation indicated that with reasonable certainty not more than 1 or 2 pairs of bluebirds nested at the Center in any one year. In early 1967, 11 bluebird nesting boxes were erected and the number was increased to 18 in 1968 and to 31 in 1969. In 1969, 28 of the 31 nesting boxes were occupied by bluebirds and 132 young bluebirds were successfully fledged in spite of the continued very heavy populations of both Starlings and House Sparrows. It seems reasonable to suppose that similar success could be attained in most rural areas of the State if sufficient public interest could be aroused.

A few MOS Chapters already have their own bluebird projects. All Chapters are urged to participate in this new MOS project, the goal of which will be to bring back the badly depleted bluebird population of Maryland as nearly as possible to its former level. The following steps are suggested:

1. Urge all members of the Chapter who own or have access to rural or far-outlying suburban property to place one or more bluebird nesting boxes on the property, and, if the boxes are used, to increase the number each year if the property is large enough to accommodate them.
2. Inspect the boxes as often as necessary during the nesting season to remove any House Sparrow nests, and record observations of nesting bluebirds or other species.
3. At the end of the bluebird nesting season each year (early September) report the results obtained so that a composite report may be prepared for Maryland Birdlife. Reports should include any unusual problems encountered or observations made that might be helpful to others in promoting the success of the project.
4. Encourage the planting of berry-bearing trees and shrubs that hold their berries throughout the winter in order to supply food for bluebirds that winter in the State. The American Holly (Ilex opaca) is one of the finest plantings for this purpose since it holds its berries until spring and they are seldom if ever eaten by Starlings. The Staghorn Sumac (Rhus typhina) is also excellent.
5. Promote large-scale public participation in the project through the press, radio, and television; by distributing literature; and by enlisting the cooperation of garden clubs and youth organizations such as Boy Scouts, Girl Scouts, and 4-H Clubs.

### Bluebird Nesting Box Plans and Instructions

Bluebirds may accept almost any nesting box that they can enter, but certain principles should be adhered to in the construction, mounting, and location of the boxes in order to insure maximum acceptance and the greatest practical degree of protection from predators, competing species, and unfavorable weather. Accessibility for observation and cleaning of the boxes is also an important consideration. The accompanying plans for a simple bluebird nesting box embody the important features. The small floor size has been found adequate for even large broods of bluebirds and helps a little to discourage House Sparrows, which prefer a larger box for their bulky nests. The rather deep box usually protects the nesting bluebirds from Starling attack. Although Starlings cannot enter the  $1\frac{1}{2}$  inch opening they sometimes reach through the opening and destroy the bluebird eggs or young unless the box is deep enough. Lumber used should be at least  $\frac{3}{4}$  inch thick to provide insulation needed in very hot or cold weather. Most any other design of box employing the essential features herein described or shown should be satisfactory.



**Painting.** It is not necessary to paint the bluebird nesting box, although painting will improve its appearance and add to its life. If the box is painted, a light color such as light tan, light green, or even white should be used. Dark colors should be avoided since



they may cause the box to overheat on hot, sunny days with disastrous effects on the eggs or young birds. It is also best to avoid paints containing lead or mercury compounds as they may prove toxic to the birds. For the same reason do not use chemical wood preservatives such as pentachlorophenol. Do not paint the inside of the box or the inside rim of the entrance hole.

Location. Selecting a suitable location for the bluebird nesting box is of utmost importance. Unfortunately bluebirds now very rarely nest in cities, large towns, or close-in suburban areas. Thus success can be expected only in far-outlying suburbs, small towns, and rural areas.

Bluebird nesting boxes should be placed in reasonably open areas since the birds will not nest in the woods and rarely in deep shade. Best of all is an open area with scattered trees, a considerable distance from buildings (especially away from barns where House Sparrows congregate.) Pastures, fields, open waste lands, large lawns, country cemeteries, and golf courses are usually satisfactory locations. Ideally the bluebird box should face an open area with a tree, large shrub, or fence from 25 to 100 feet in front of the box. The young birds then have a good chance of reaching this on their first flight and thus have a better chance of surviving the first critical hours out of the nest.

Do not place bluebird boxes near any area where wide-spread use is made of insecticides or herbicides. Many of these substances will destroy the birds' food supply or even kill the birds directly.

Mounting. By using the small holes shown in the top and bottom extensions of the back board, the box may be nailed or screwed to the top or side of a wooden post, or it may be bolted or wired to the top or side of a metal post. A smooth metal post such as a galvanized pipe is preferred to a wooden post since it offers better protection against predators such as cats, raccoons, and snakes, particularly if the post is coated with soft grease while the bluebirds are occupying the box. A 1/2 or 3/4 inch galvanized pipe threaded at one end can be neatly and firmly attached to the bottom of the box by means of a pipe flange which may be obtained at any hardware store. A bluebird box on a wooden post may be protected from predators by means of a sheet metal collar or conical guard 18 or more inches wide attached just below the box. Where predators are not a problem bluebird boxes may be mounted conveniently on posts of existing fences, on utility poles (if the utility company permits), or on the trunks of isolated trees (never among the branches). If posts of pasture fences are used the boxes should be on the side away from the animals or else placed high enough so that the animals will not use them as back scratchers.

Bluebird nesting boxes should be mounted at a height of 3 to 5 feet measured from the ground to the floor of the box. In Maryland they should preferably be set out before March 1.

Sparrows. The House Sparrow is usually the most troublesome of all pests that interfere with the bluebirds' use of nesting boxes. Sparrows are discouraged to some extent by the small floor size recommended for the box, by mounting the box rather low (3 to 5 feet), and by locating the box at a considerable distance from buildings. If sparrows do take over the bluebird box their nests should be removed repeatedly, daily if necessary, during the nesting season.

Maintenance. Bluebird nests should be removed from the boxes as soon as the young have left since this will increase the chance of second or third broods being raised in the same boxes. The boxes should be inspected, cleaned, and repaired if necessary in February each year, making sure that the drain holes in the floors are open.

A copy of the booklet "Bluebirds for Posterity," which contains additional information, has been mailed to the President of each Chapter. Plans for participation in the MOS Bluebird Project should be made as soon as possible, as the nesting season will soon be here. The writer will be glad to help in any way possible.

4312 Van Buren St., University Park

## PROJECTS FOR THE WINTER AND SPRING MONTHS

Blackbird and Starling Roosts. The U. S. Fish and Wildlife Service is trying to locate all major winter roosts of these species. Please report roost sites if known, or any flight lanes that are used regularly if the exact roost site is not known. Send reports to Brooke Meanley, Patuxent Wildlife Research Center, Laurel.

Bluebird Boxes. Start now to get your boxes ready. See the fine article by Dr. Zeleny on pages 138-142.

Crossbill Invasion. Don't miss out on the great crossbill invasion of 1969-70! The present flight will go down in the records as the best ever for the Red Crossbill in Maryland. This species seems to be especially common on the lower Eastern Shore, where Christmas Counts revealed 110 at Ocean City, 152 in Southern Dorchester County, and 205 at Crisfield. If you want to try to add this species to a County list, visit the following Counties from which the Red Crossbill has never been recorded: Washington, Frederick, Carroll, Charles, St. Marys, Calvert, and Cecil. If you can't find them closer to home, drive down to your Irish Grove Sanctuary (see the map in the December 1968 issue of Maryland Birdlife); the Red Crossbill was one of the most common songbirds on the Sanctuary at the end of December. Although it is unlikely that any of the crossbills will remain to breed in Maryland, it is a possibility, so we should make every effort to detect their nesting here in the spring or summer. Red Crossbills are noted for their unpredictability. White-winged Crossbills are present in much smaller numbers than the Reds and will disappear much earlier in the spring. Record all dates and numbers for both species.

Banded Winter Finches. About a dozen Maryland banders will be applying ordinary aluminum leg bands to Evening Grosbeaks, Pine Siskins, American Goldfinches, Purple Finches, and possibly other finches. In past years many of these banded birds have visited other feeders in Maryland. When flocks of finches are feeding on your windowsill or within easy view from your window, it frequently is possible to see bands on their legs. Keep a count each day of the number of birds with bands and the number known to be unbanded; do not count those whose legs cannot be seen clearly. Report dates and numbers to the Editor of Maryland Birdlife. The percentage of banded birds should gradually increase during the winter and then decline with the arrival of spring transients.

Information received will be passed along to banders who are specializing in the various species. Watch for Arthur Alexander's paper on local movements of Pine Siskins, to appear shortly in Maryland Birdlife.

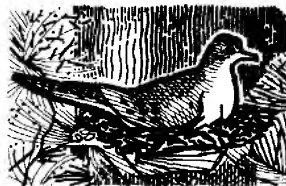
Evening Grosbeak banders, Vernon Kleen requests that you summarize your bandings and observations for this species for the winters of 1968-69 and 1969-70 as you did for prior years, and send the information to him at 339 Talbot Avenue, Laurel 20810. See Mr. Kleen's article on the Maryland status of this species in the March 1969 issue of Maryland Birdlife for the type of information desired.

Color-banded House Finches. Watch for House Finches with colored leg bands. Mr. J. Richard Cohen has been applying color bands to denote age of Long Island House Finches. One of his birds has appeared at the feeder of Arthur Alexander in Laurel; another believed to be his has been seen in Montgomery County.

Ipswich Sparrow Study. See page 119 of this issue for details. One banded bird was seen at Assateague National Seashore on Dec. 30 by Mr. and Mrs. Roger Troutman.

Ring-billed Gulls with Wing Tags. During May through July for a five-year period, 1967-1971, Ring-billed Gulls (Larus delawarensis) from three Great Lakes colonies are being wing-marked with 1.5 inch-diameter "Safilag" tags. Each colony is represented by a specific color. An attempt is being made to determine the dispersal pattern, migration routes, and winter range for each population. Anyone observing such wing-marked gulls is asked to notify Dr. William E. Southern, Department of Biological Sciences, Northern Illinois University, DeKalb, Illinois 60115. Please report each observation of marked individuals even though the same bird may be sighted on different days. The following information is desired: date, exact location, marker color, and observer's name. Your assistance in this aspect of the project will be greatly appreciated. Respondents will receive information pertaining to colony locations and the date of marking. Many Ring-billed Gulls banded in the Great Lakes States have been recovered in Maryland, so it is quite likely that some of the marked birds will be found if we search for them.

Whistling Swans with colored leg bands or with dye on the neck should be reported to Dr. W. J. L. Sladen, 615 N. Wolfe Street, Baltimore 21205. For details, see the September 1968 issue of Maryland Birdlife or write to Dr. Sladen.



## COMING EVENTS

- Jan. 6 KENT Audubon Lecture 7:30 P. M. Fine Arts Bldg.  
Washington College.
- 8 FREDERICK Monthly meeting 7:30 P. M. Winchester Hall.  
"New Horizons for Catoctin National Mountain Park  
and its place in the National Park System"
- 13 CAROLINE Monthly meeting. "Land of the Drowned River",  
Nick Carter, Chesapeake Bay Affairs Choptank  
Coop Bldg., West Denton, 8 P.M.
- 15 MONTGOMERY Monthly meeting - Social Evening
- 15 TALBOT Audubon Screen Tour 8 P. M., Mt. Pleasant School.  
Roger Tory Peterson, "Galapagos - Wild Eden".
- 18 MONTGOMERY Field trip to Kent Island
- 21 ALLEGANY Monthly meeting, Board of Education Bldg.  
Film: "Wild Rivers"
- 25 BALTIMORE Covered Dish Supper at Cylburn Mansion, 5 P.M.  
Film: "Wild Wings".
- 27 PATUXENT Monthly meeting 7:45 P.M., St. Philip's Parish  
House, Laurel, 7:45 P. M. "Exploring the  
Colorado Rockies", by Jane Robbins.
- 28 BALTIMORE Duck Identification Class with C. Douglas  
Hackman, Cylburn at 8:00 P. M.
- Feb. 4 KENT Monthly meeting 8 P. M., Alumni House,  
Washington College. "Studies of Whistling Swans",  
Dr. Wm. J. L. Sladen.
- 5 FREDERICK Monthly meeting 7:30 P. M. Film: "Marshland is  
Not Wasteland".
- 7 BALTIMORE Perry Point and Susquehanna River. 8 A.M.  
Leader: Mr. Rodney Jones
- 13 ANNE ARUND. Monthly meeting 8 P.M., Assembly Room, State Office  
Bldg., Annapolis. "Bluebirds and How to Attract  
them", Dr. Lawrence Zeleny.
- 13 CAROLINE Film program by Mr. Roy Castle, Maryland Dept. of  
Game and Inland Fish. 8 P. M. Greensboro School.
- 13 TALBOT Audubon Screen Tour- "Hawaii - Paradise of the  
Pacific", Walter H. Berlet
- 18 ALLEGANY Monthly meeting 8 P. M., Parkside School
- 19 MONTGOMERY Monthly meeting, "White Winged Gulls".  
Speaker: Carl Carlson
- 20-22 BALTIMORE Chincoteague Weekend. Leaders: Mr. & Mrs. Wm.  
Schneider (254-2095). Register by Feb. 10.
- 24 PATUXENT Monthly meeting. "Bluebirds", Dr. L. Zeleny.
- 27 BALTIMORE 25th Anniversary Party, Northwood-Appold Church,  
Loch Raven Blvd. & Cold Spring Lane.

- Feb. 28 ANNE ARUND. All day trip to Blackwater Refuge. Leader R. Heise  
Mar. 4 KENT Monthly meeting. "Birds of the South Pacific",  
C. Douglas Hackman.
- Mar. 5 FREDERICK Monthly meeting. Speaker: Albert Powell who will  
show films: "Bobolinks" and "Down to Feathers".  
6 HARFORD Dinner meeting  
8 BALTIMORE Chesapeake Bay Center for Field Biology at Ivy  
Neck. 8 A.M. Leader, Dr. William Sladen  
10 CAROLINE "The State President Reports", 8 P. M., River-  
view School, Lockerman Street, Denton.  
10 TALBOT Audubon Screen Tour. Eben McMillan, "Land That I  
Love".  
13 ANNE ARUND. Monthly meeting 8 P.M., Assembly Room, State Office  
Bldg. "Adventures Through the Window", D. Preston.  
15 BALTIMORE Courtship Flight of Woodcock at dusk. Leader:  
Mr. C. Haven Kolb, Jr. 5:30 P. M.  
17 BALTIMORE Spring at Lake Roland. First of Tuesday morning  
walks. 8 A. M. Leader for March: Mrs. Martin  
Larrabee  
18 ALLEGANY Monthly meeting, Board of Education Bldg. 7:30 P.M.  
Slides of Wild Flowers by Dr. Robert F. Miller  
18 KENT Audubon Screen Tour. Mr. Wm. A. Anderson, "Our  
Unique Wilderness, the Everglades". 7:30 P. M.  
Fine Arts Bldg., Washington College  
19 MONTGOMERY Monthly meeting. "Birding in Colombia", Don  
Messersmith  
20 BALTIMORE Audubon Wildlife Film Lecture. Barbara Stewart,  
"Everglades Safari", 8 P. M., Mergenthaler High  
School.  
21 BALTIMORE Sandy Point and Kent Island. 9 A.M. Leaders:  
Mr. & Mrs. MacDonough Plant  
21 KENT Bombay Hook for wintering waterfowl  
22 FREDERICK Field trip to Lander, the C & O Canal and the  
Potomac River. Leader: Sarah Quinn  
24 BALTIMORE Lake Roland 8 A.M.  
24 PATUXENT Monthly meeting. "Flyway: Blackwater to Texas".  
31 BALTIMORE Lake Roland, 8 A.M.
- Apr. 1 KENT Monthly meeting - Junior Members' program  
9 FREDERICK Monthly meeting - Election of Officers  
5 ALLEGANY 1:30 P. M. meet at Barton's Restaurant on Rte.  
220 South, for spring migration at Savage River  
Dam.  
7 BALTIMORE Lake Roland 8 A.M. Leader for April:  
Mrs. Harold Archer  
10 CAROLINE "Adventures Through the Window", Dickson Preston  
at Federalsburg School Library, University Ave.  
8 P. M.  
10 ANNE ARUND. Annual Spring Lecture, "A Naturalist's Notebook",  
Maurice Broun, former Curator of Hawk Mt. Sanctuary.  
11 FREDERICK Field trip to Annapolis, Sandy Point; banding at  
Monastary, and birds in the garden of Prof. and Mrs.  
David Howard

- Apr. 14 BALTIMORE Lake Roland, 8 A.M.  
 15 ALLEGANY Monthly meeting 7:30 P. M., Board of Education Bldg. "Song Birds and Wild Flowers of Garrett County" by Gus E. Johnson.  
 16 MONTGOMERY Monthly meeting. "So Little Time", film presentation. Speaker: Gale Monson.  
 Apr. 18 BALTIMORE Druid Hill Park. 8 A.M. Leaders: Mr. & Mrs. Walter Bohanon  
 19 ALLEGANY 2 P.M. at Tunnel for bird walk through the Paw Paw Tunnel.  
 19 BALTIMORE Rock Run Sanctuary 8:30 A.M. Leader: C. Douglas Hackman  
 21 BALTIMORE Lake Roland, 8 A.M.  
 24 BALTIMORE Audubon Wildlife Film Lecture: Charles Mohr, "The Living Wilderness", 8 P. M. Mergenthaler High School.  
 25-26 ALLEGANY Work days at Carey Run Sanctuary. Chairmen: Mr. & Mrs. John Workmeister  
 25-26 ANNE ARUND. Overnight trip to Irish Grove Wildlife Sanctuary.  
 26 BALTIMORE Loch Raven for warblers. Leader Mr. William Corliss. 8 A.M.  
 26 FREDERICK Field trip to Seneca for spring warblers. Leader: Charles Mullican  
 28 BALTIMORE Lake Roland, 8 A.M.  
 28 PATUXENT Monthly meeting  
 May 1 HARFORD Dinner meeting  
 2 STATEWIDE BIRD COUNT  
 5 BALTIMORE Lake Roland, 8 A.M. Leader for May: Mrs. Robert E. Kaestner  
 7 FREDERICK Monthly meeting. Speaker: Jerry Coates, "Hummingbirds"  
 8-10 STATEWIDE MOS CONVENTION, Hastings-Miramar, Ocean City, Md.  
 9 BALTIMORE Finally Farm, 8 A. M.  
 9 FREDERICK Field trip to Harpers Ferry, Virginus Island and C & O towpath. Leader: Bill Shirey  
 12 BALTIMORE Lake Roland, 8 A.M.  
 17 ALLEGANY 2 P. M. Flower walk at Carey Run Sanctuary. Leaders: Mrs. Gordon Taylor and Mrs. R. Rosher  
 17 BALTIMORE Patapsco State Park (Glen Artney area) 7 A. M. Leader: Mr. Irving Hampe  
 19 BALTIMORE Lake Roland 8 A. M.  
 20 KENT Audubon Screen Tour, Mr. Robert W. Davison, "Journey in Time", 7:30 P. M. Fine Arts Bldg.  
 21 MONTGOMERY "Pesticides and Their Effect on Birds". Speaker: William Stickel of Patuxent Research Center.  
 22-24 BALTIMORE Cape May, New Jersey, for migrating shore birds. Reservations with Miss Grace Naumann (377-9032) by May 14.  
 23 ANNE ARUND. Field trip to Obligation Farm. Meet 7:40 A.M. at Riva Rd. entrance to Parole parking lot. A. Paradee.  
 23 KENT Eastern Neck Island



May 24	FREDERICK	Field trip and picnic at White's Ferry on the Potomac. Picnic supper 5 P. M.
26	PATUXENT	Monthly meeting
June 3	KENT	Monthly meeting - Covered dish supper at "Damsite"
6	BALTIMORE	Picnic Supper, YMCA Camp Black Rock in Butler, Md. Field trip 5 P. M. Supper 6 P. M.
7	CAROLINE	Annual Picnic. Meet at Irish Grove Wildlife Sanctuary, Somerset County, 2:30 P. M.
12-14	ALLEGANY	Adult Nature & Conservation Camp at Pleasant Valley
15-20	ALLEGANY	Children's Nature and Conservation Camp at Pleasant Valley.
28	ALLEGANY	Anniversary week-end at Carey Run. Bird walk 3 P. M.; Covered dish supper 5:00 P. M.

### BALTIMORE JUNIOR PROGRAMS

MOS programs for all school age children on alternate Saturdays and Spring vacation at Cylburn. All talks begin at 10 A.M. followed by bird and nature walks at 10:45 A.M.

Jan. 24,	Wild Pet Show
Feb. 7	Mammals - Mr. Irving Hampe
Feb. 21	Oceanography - Dr. Jerry R. Schubel
Mar. 7	Film: "Nesting Robins"
Mar. 21	Herptiles - Mr. Russell Dunn
Mar. 30 - Apr. 3	Vacation Bird and nature walks each morning at 9:00 A. M.
Apr. 4	Banding demonstration
Apr. 18	Flowers - Miss Dorothy Gustafson
May 2	Meteorology - Speaker from U. S. Weather Bureau
May 16	Nesting - Mr. C. Douglas Hackman



### 1969 NEST CARDS

I would appreciate receiving all 1969 nest cards by mid-March 1970 at the latest so that I can have the nest summary ready for the June issue of Maryland Birdlife. There are still a few people from whom I normally receive cards who have not yet submitted them. Other members who have not made out nest record cards in the past are urged to write me for cards and instructions. We need as many reports as possible, even for the common species. If cards cannot be returned by mid-March, send them anyway—they will still be useful to M.O.S. and to the national nest record center at Cornell University even if they are too late to be included in the 1969 summary. Send them to my home address or to Ted Van Velzen at the Migratory Bird Populations Station, Laurel. All cards submitted will be loaned to Cornell for punching and then returned for the M.O.S. research files. We thank those members who have already sent in their 1969 nest records.

Danny Bystrak, 582 Rita Drive, Odenton 21113

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## MARYLAND BIRDLIFE

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# MARYLAND BIRDLIFE INDEX

Volumes 21 - 25  
1965 - 1969

Part One: Species Index

Part Two: Author Index

prepared by  
Willet T. Van Velzen  
and  
Aldeen C. Van Velzen

Price 50¢

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December 1969

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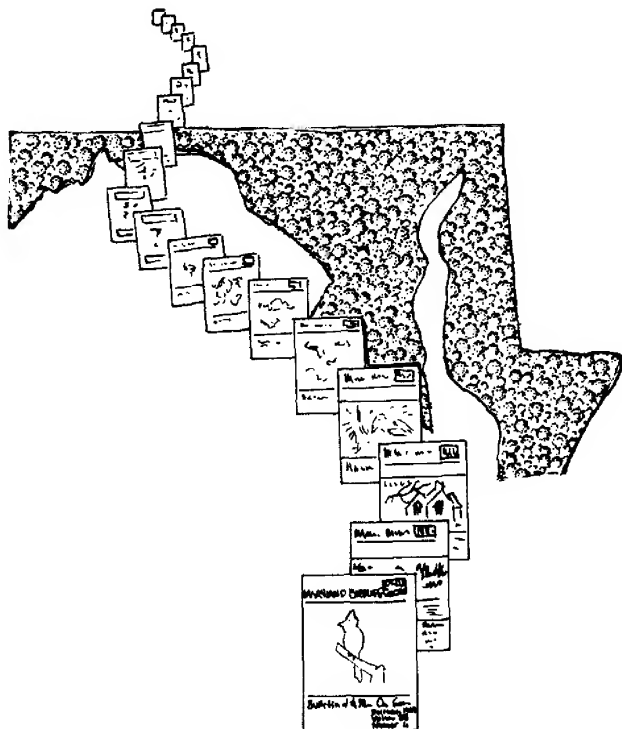
Part One: Species Index.

Species are listed in alphabetical order according to the common names used in the American Ornithologists' Union's Check-List of North American Birds, Fifth Edition, 1957. Volume numbers are underscored, followed by page numbers in numerical order. An "n" following a page number indicates a reference to a nesting record, a "b" indicates a banding record and an "x" indicates that the reference is extralimital, i.e. not occurring in Maryland.

Part Two: Author Index.

Authors are listed alphabetically, with titles of papers in chronological order giving volume and page reference. All papers of joint authorship are cross-referenced.

The assistance of Mrs. Ethel A. Cobb in preparation of the manuscript is gratefully acknowledged.



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